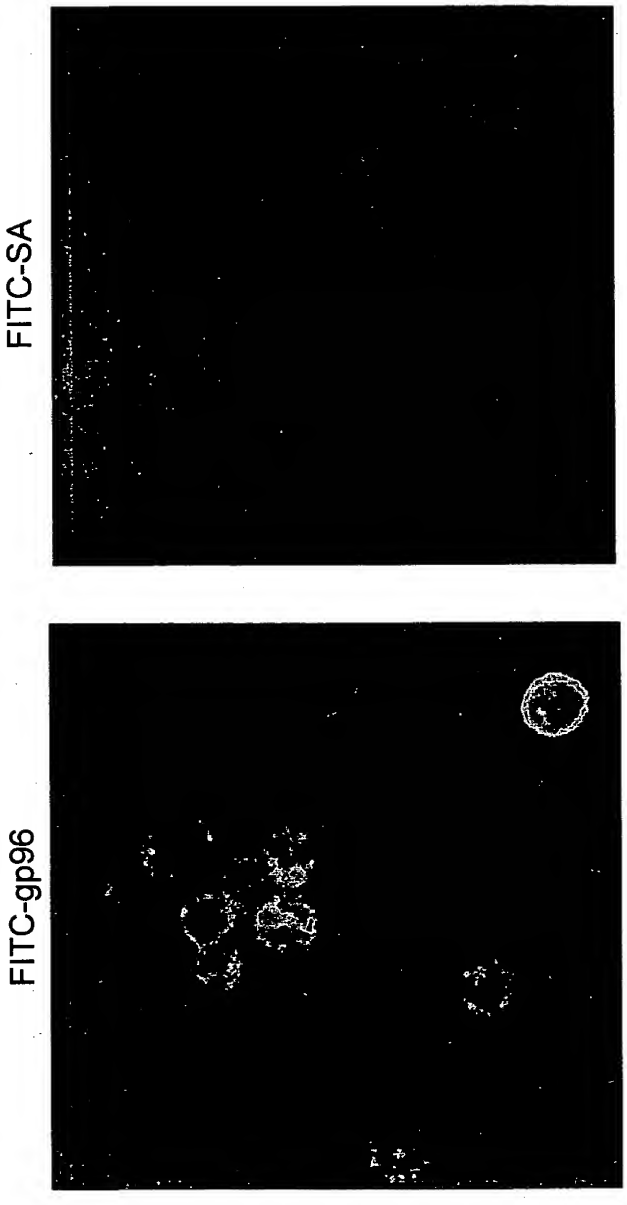

FIG. 1A

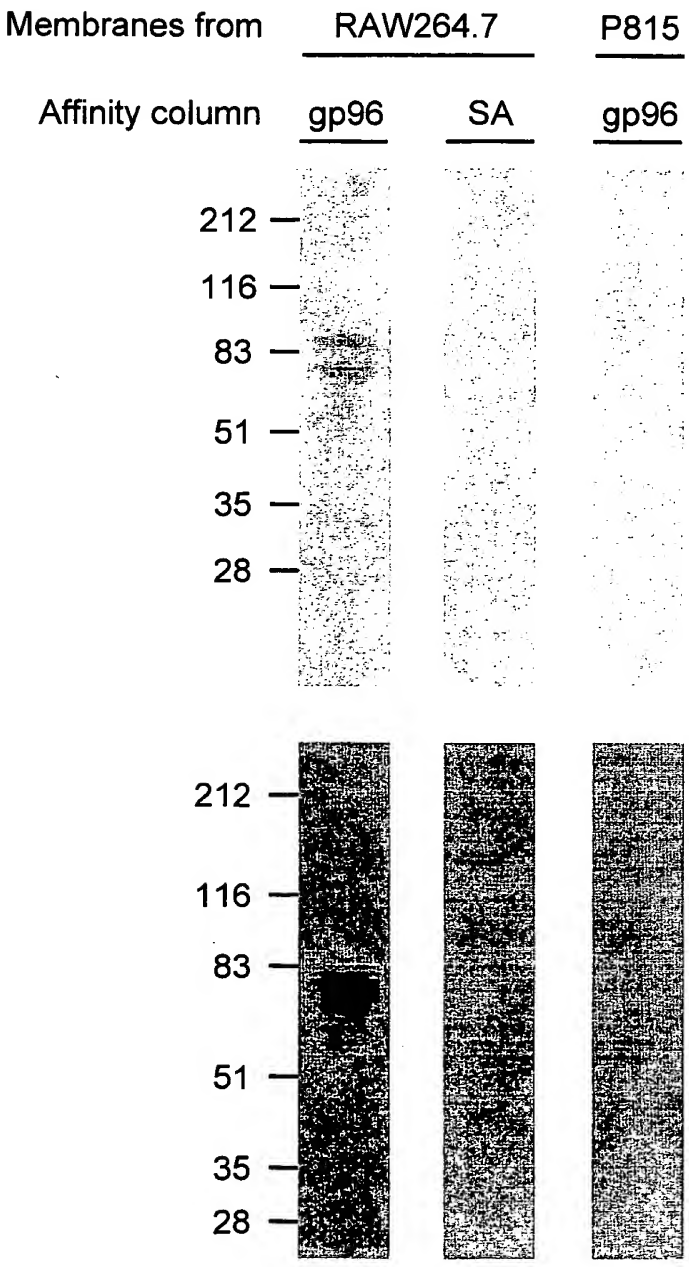
Membranes from
RAW264.7
P815
Affinity column
gp96
SA
gp96
212
116
83
51
35
28
212
116
83
51
35
28

FIG.1B

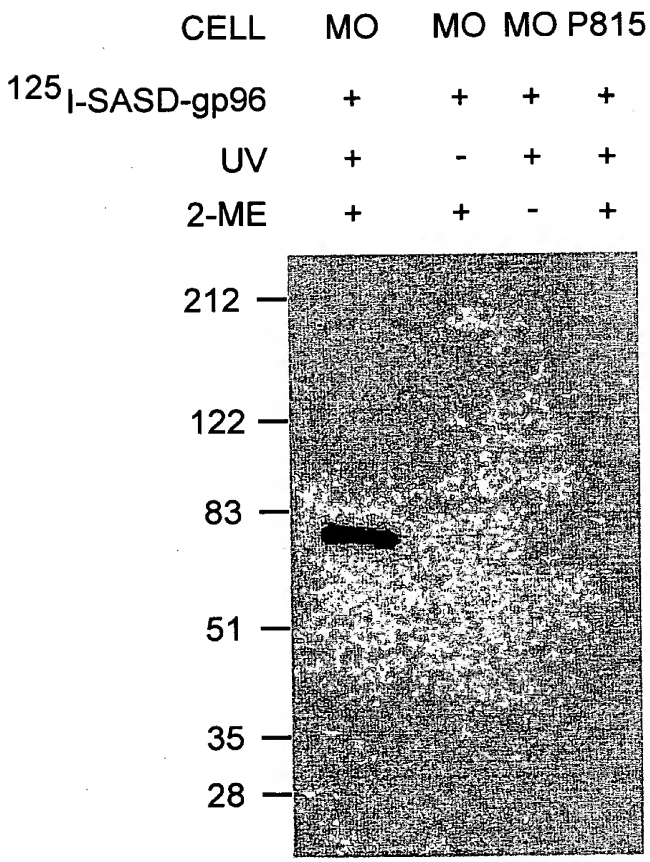

FIG.1C

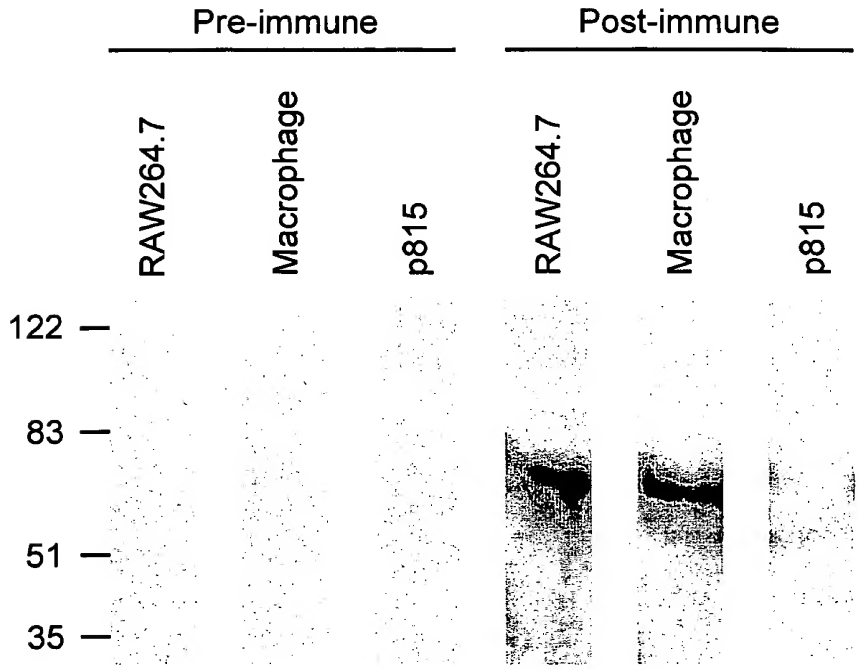
Pre-immune
Post-immune
RAW264.7
Macrophage
p815
RAW264.7
Macrophage
p815
122
83
51
35

FIG.2A

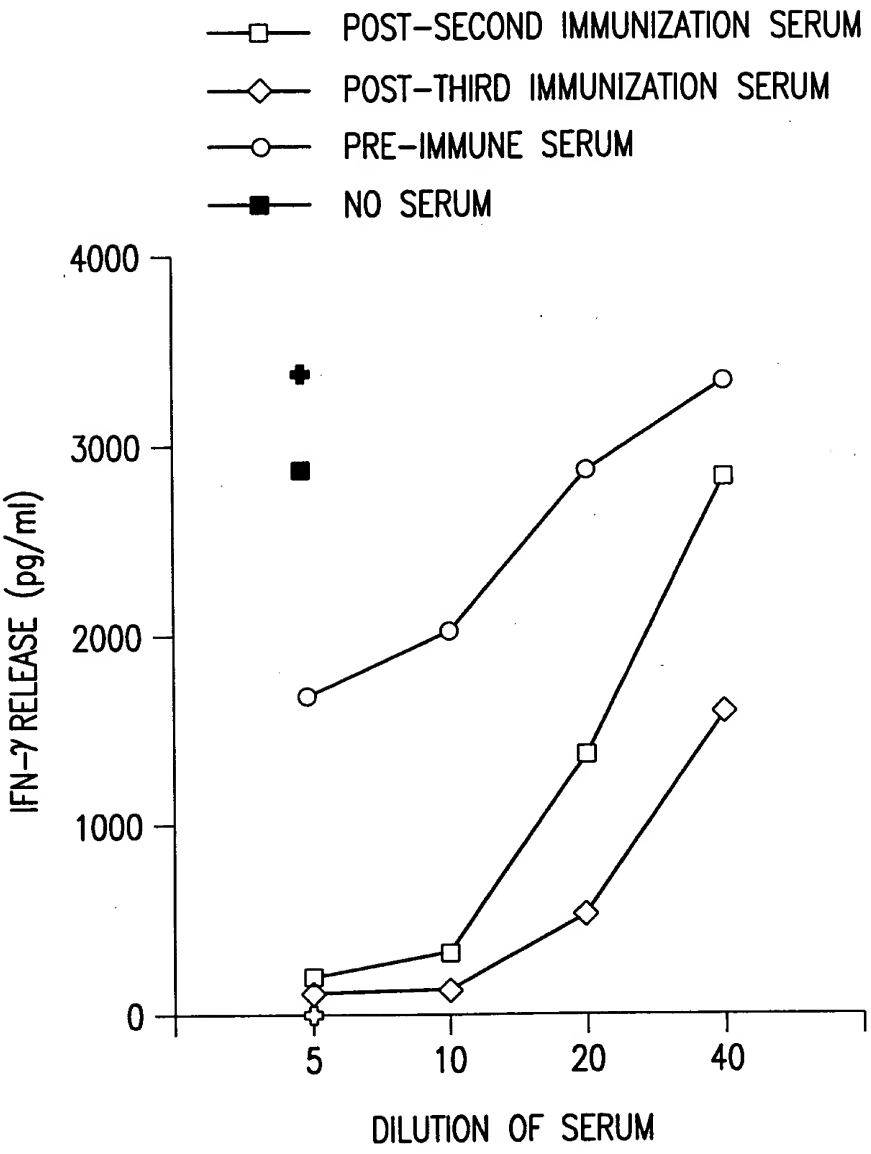
POST-SECOND IMMUNIZATION SERUM
POST-THIRD IMMUNIZATION SERUM
PRE-IMMUNE SERUM
NO SERUM
4000
3000
2000
1000
0
IFN-γ RELEASE (pg/ml)
5
10
20
40
DILUTION OF SERUM

FIG.2B

Seq	#	b	y	+1
G	1	58.1	–	10
G	2	115.1	1095.2	9
A	3	186.2	1038.2	8
L	4	299.3	967.1	7
H	5	436.5	853.9	6
I	6	549.6	716.8	5
Y	7	712.8	603.6	4
H	8	850.0	440.5	3
Q	9	978.1	303.3	2
R	10	–	175.2	1

FIG.3A

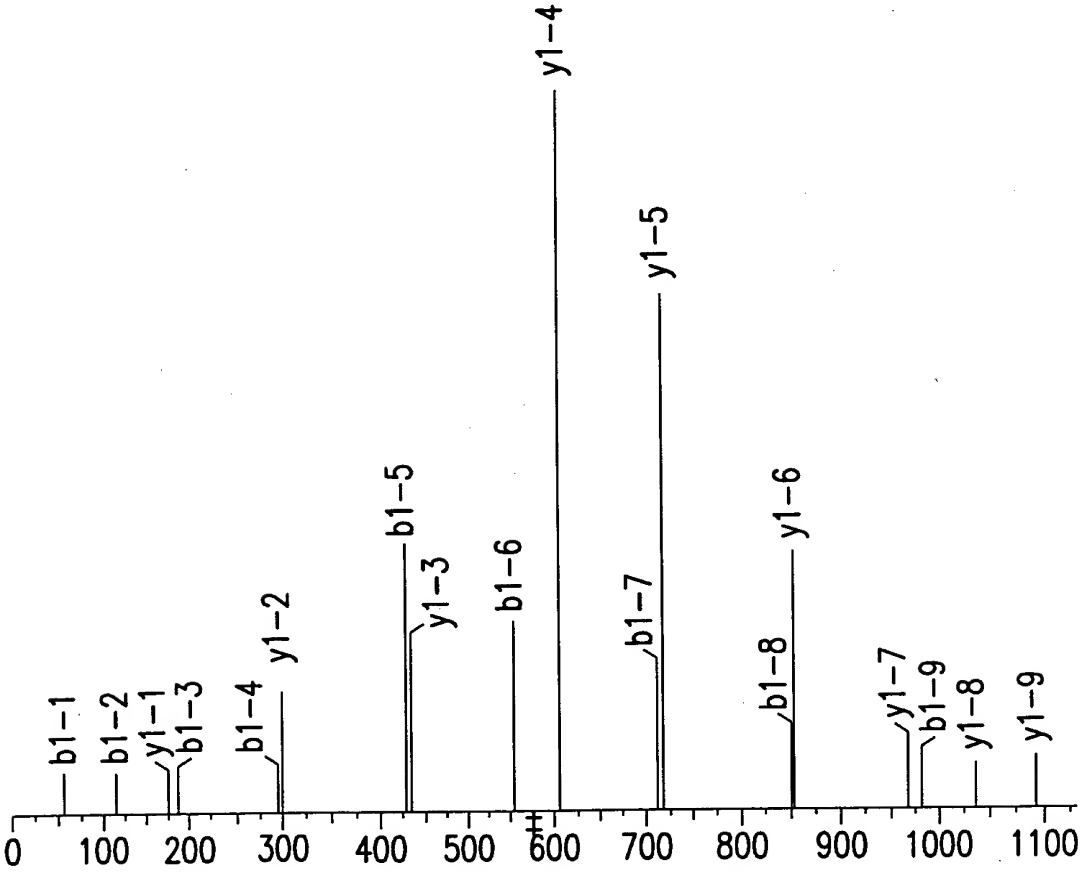
b1-1
b1-2
y1-1
b1-3
b1-4
y1-2
b1-5
y1-3
b1-6
y1-4
b1-7
y1-5
b1-8
y1-6
y1-7
b1-9
y1-8
y1-9
0
100
200
300
400
500
600
700
800
900
1000
1100

FIG.3B

POSITION	MH+	SEQUENCE	
509–518	955.0122	SGFSLGSDGK	(SEQ ID NO: 54)
328–337	973.1753	GIALDPAMGK	(SEQ ID NO: 55)
460–469	1152.3010	GGALHIYHQR	(SEQ ID NO: 56)
338–348	1315.5116	VFFTDYGQIPK	(SEQ ID NO: 57)

FIG.3C

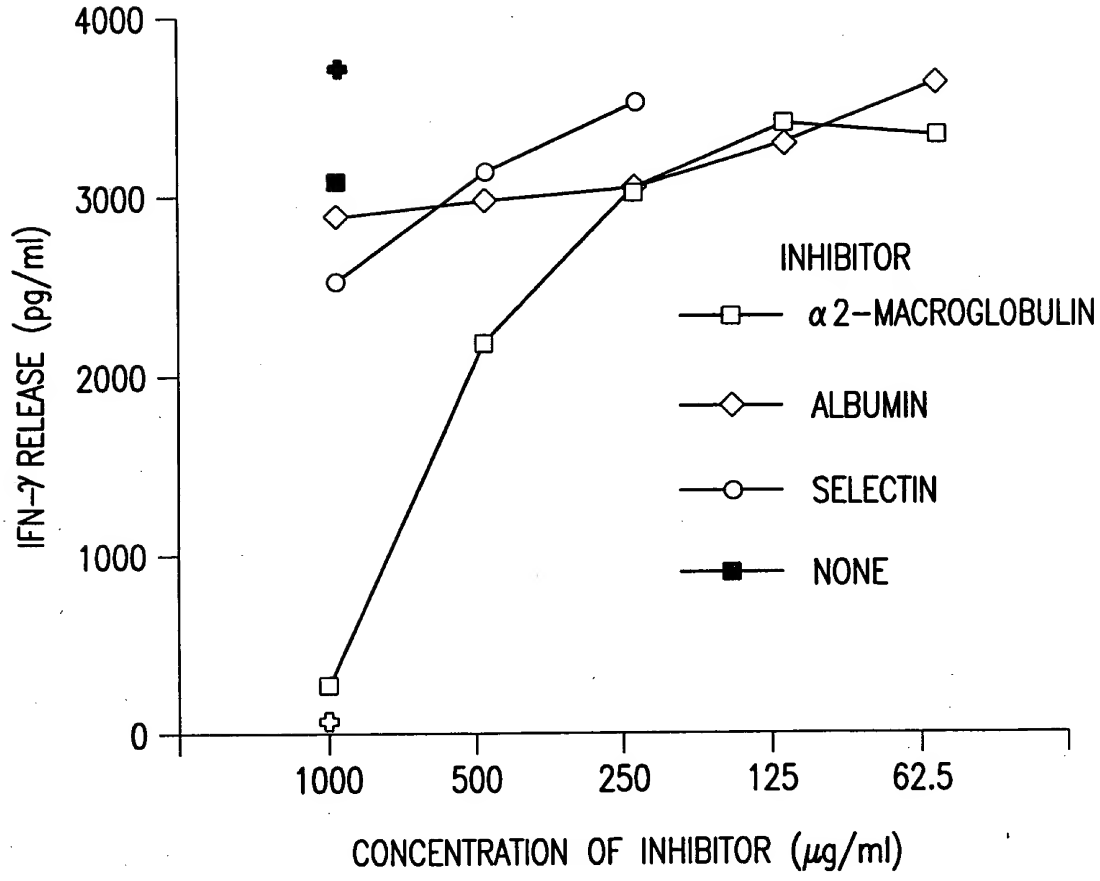
4000
3000
2000
1000
0
IFN-γ RELEASE (pg/ml)
1000
500
250
125
62.5
CONCENTRATION OF INHIBITOR (μg/ml)
INHIBITOR
α2-MACROGLOBULIN
ALBUMIN
SELECTIN
NONE

FIG.4

TABLE1. SPECIFIC BINDING OF HSPs AND α_2 -MACROGLOBULIN TO PRIMARY CULTURES AND CELL LINES OF SEVERAL HISTOLOGICAL ORIGINS *

CELLS	CELL TYPE	HAPLOTYPE	** % CELLS BINDING WITH FITC-LABELED:				
			α_2M	gp96	hsp70	hsp90	SA
B16	MELANOMA	*b*	0.1	3.5	6.4	8.0	0.3
CT26	CARCINOMA	*d*	N/D	0.3	3.1	5.5	0.4
YAC-1	LYMPHOMA	*b*	0.1	3.1	23.0	5.0	0.2
EL4	T CELL THYMOMA	*b*	0.1	2.9	3.0	6.6	1.0
Meth A	SARCOMA	*d*	0.1	0.1	1.5	0.9	0.5
PS-C3H	FIBROSARCOMA	*k*	0.1	0.1	2.0	0.3	0.3
UV6139	SARCOMA	*k*	11	0.0	0.7	0.2	1.5
P815	MASTOCYTOMA	*d*	0.1	1.1	1.7	0.7	0.2
PERITONEAL CELLS	MACROPHAGE	*d*	90	97	82	82	11
BM-DCs	DENDRITIC CELLS	*b and d*	+++#	+++	+++	+++	–
RAW264.7 *	MACROPHAGE	*d*	76	82	85	90	8.0
RAW309Cr.1*	MACROPHAGE	*b x d*	0.1	0.1	0.1	0.1	0.1

FIG.5

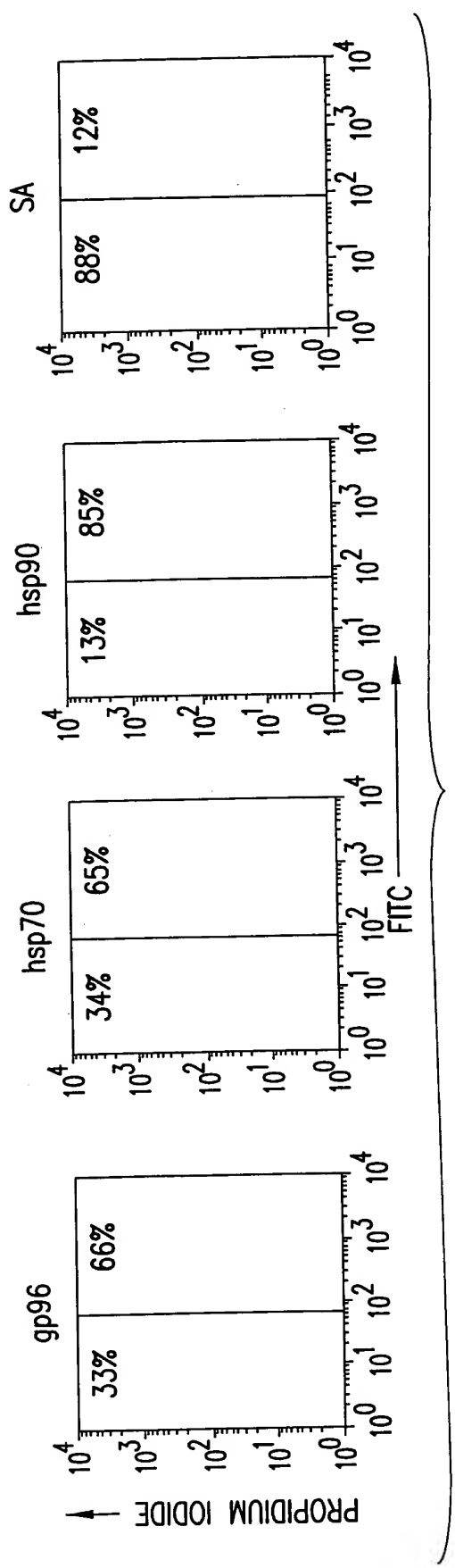
SA
hsp90
hsp70
gp96
88%
12%
13%
85%
34%
65%
33%
66%
PROPIDIUM IODIDE
FITC

FIG.6A

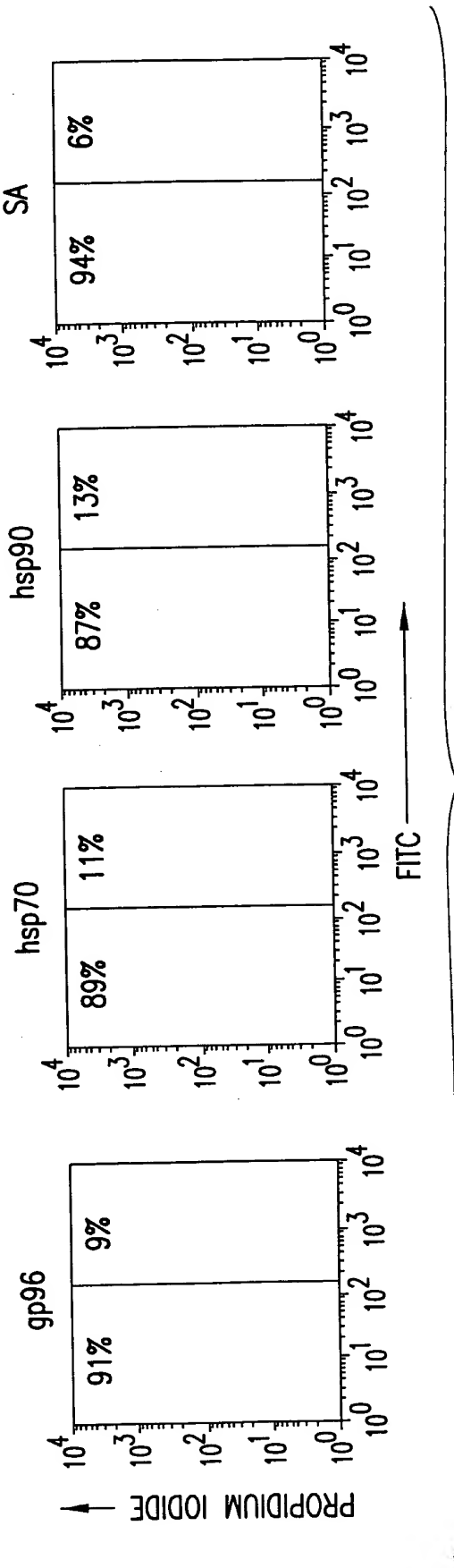
SA
hsp90
hsp70
gp96
94%
6%
87%
13%
89%
11%
91%
9%
PROPIDIUM IODIDE
FITC

FIG.6B

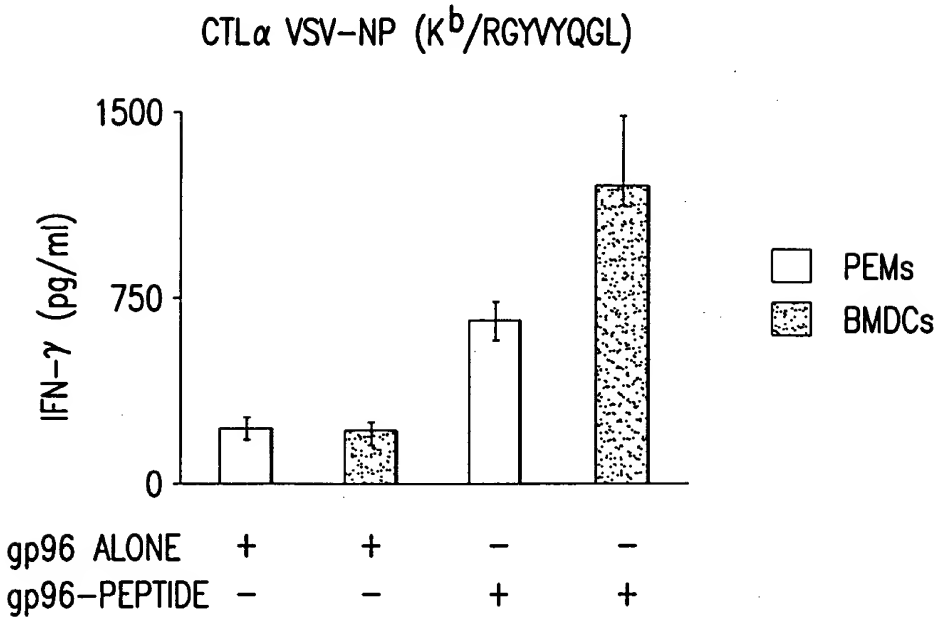
CTLα VSV-NP (K^b/RGYVYQGL)
1500
750
0
IFN-γ (pg/ml)
PEMs
BMDCs
gp96 ALONE + + − −
gp96-PEPTIDE − − + +

FIG.7A

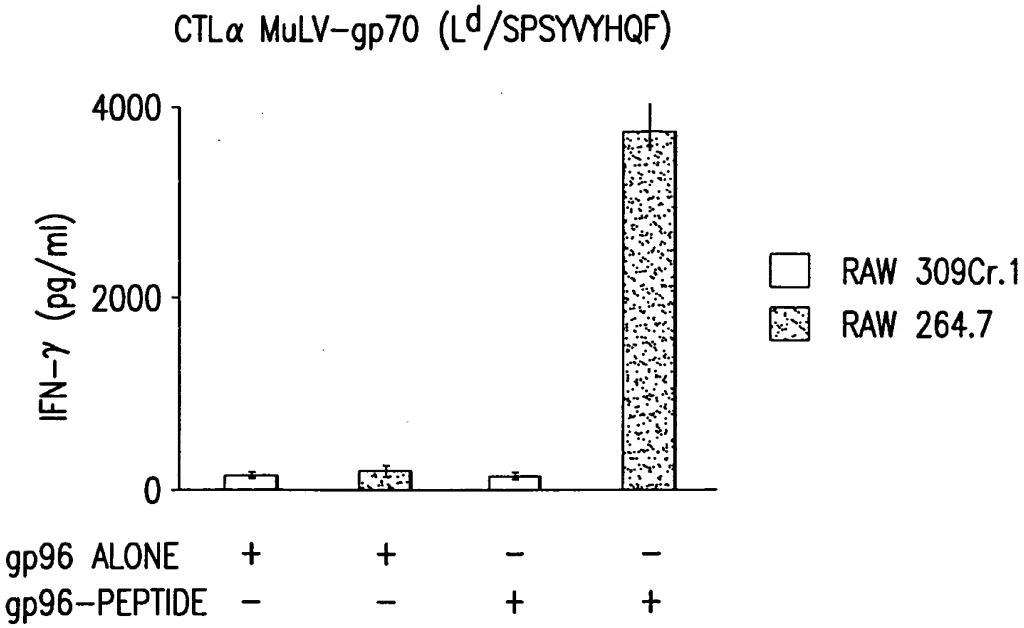
CTLα MuLV-gp70 (L^d/SPSYVYHQF)
4000
2000
0
IFN-γ (pg/ml)
RAW 309Cr.1
RAW 264.7
gp96 ALONE + + − −
gp96-PEPTIDE − − + +

FIG.7B

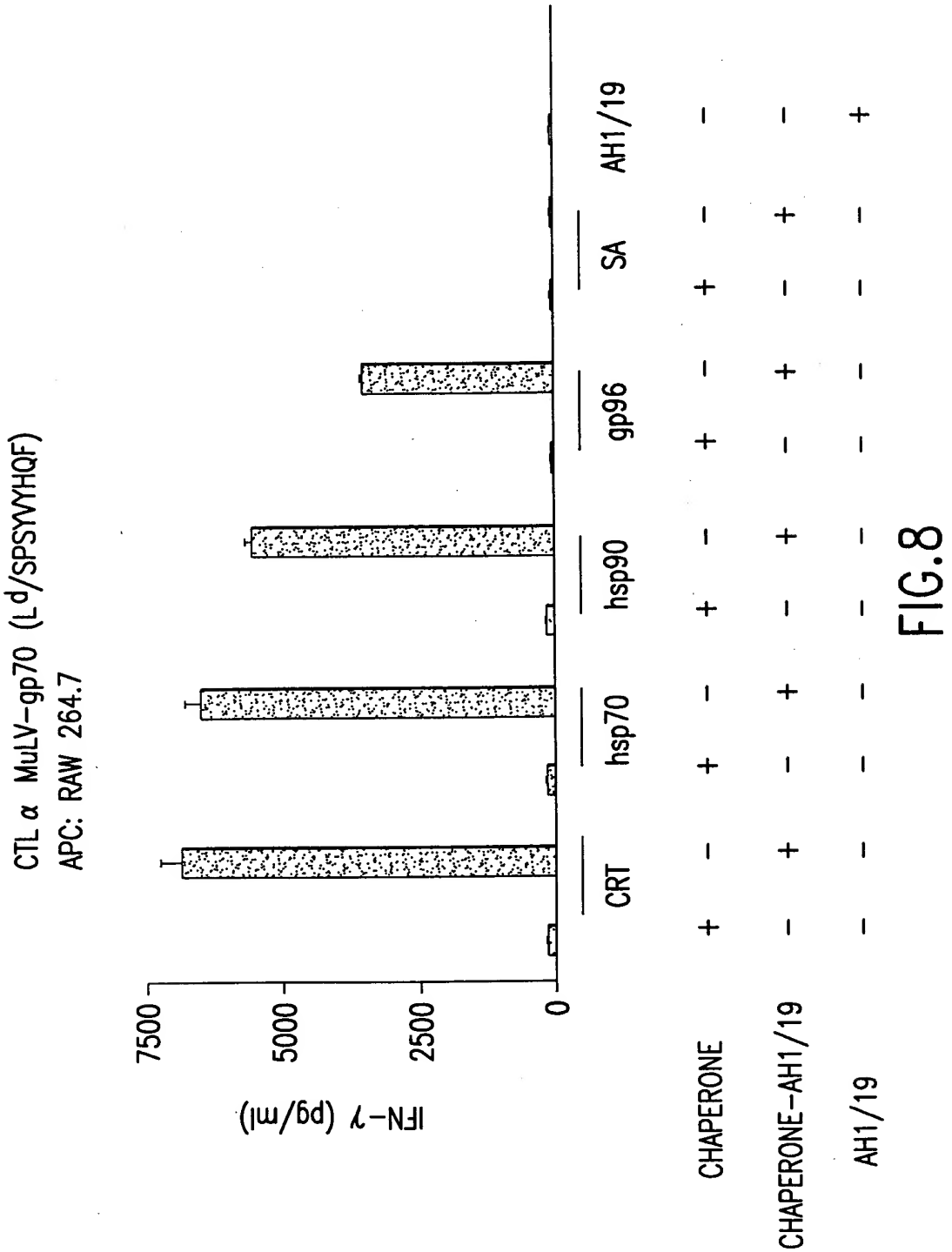
CTL α MuLV-gp70 (L^d/SPSYVYHQF)
APC: RAW 264.7
IFN-γ (pg/ml)
7500
5000
2500
0
CRT
hsp70
hsp90
gp96
SA
AH1/19
CHAPERONE
CHAPERONE-AH1/19
AH1/19

FIG.8

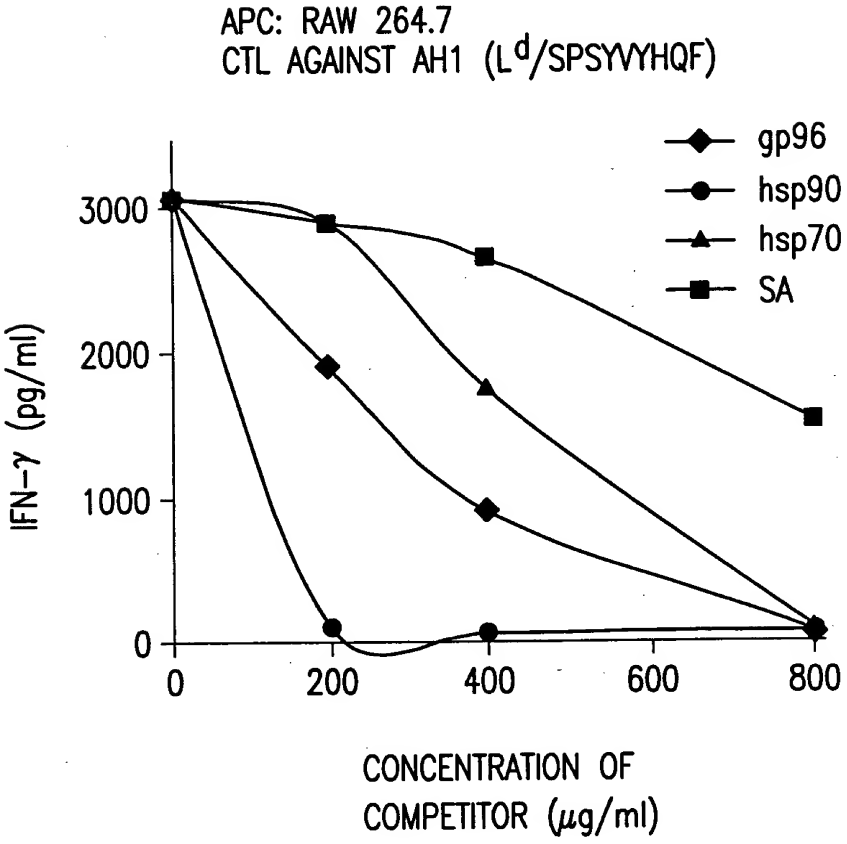
APC: RAW 264.7
CTL AGAINST AH1 (L^d/SPSYVYHQF)
gp96
hsp90
hsp70
SA
IFN-γ (pg/ml)
3000
2000
1000
0
0
200
400
600
800
CONCENTRATION OF
COMPETITOR (μg/ml)

FIG.9A

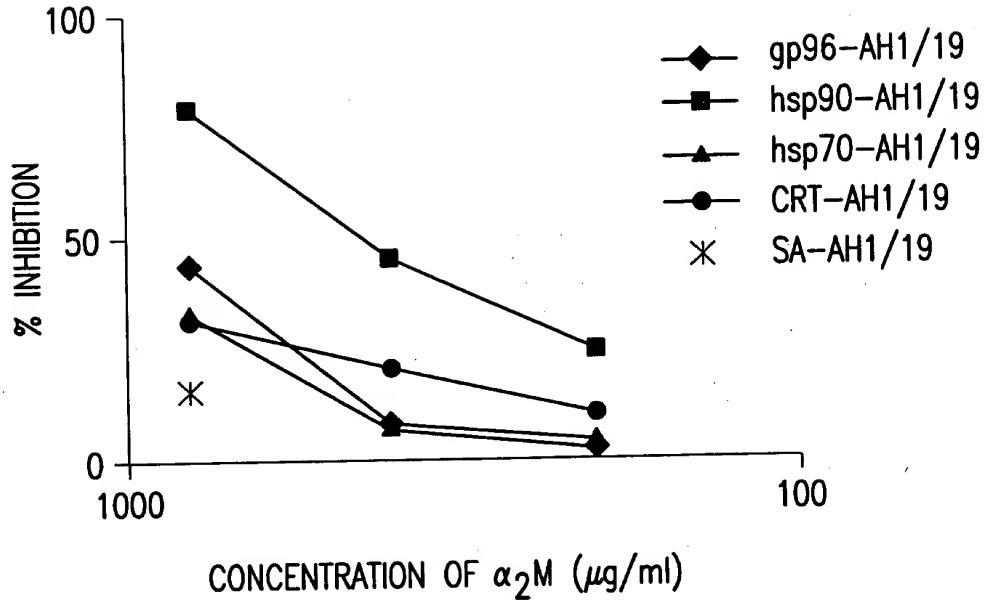
100
50
0
% INHIBITION
1000
100
CONCENTRATION OF α_2M (μg/ml)
gp96-AH1/19
hsp90-AH1/19
hsp70-AH1/19
CRT-AH1/19
SA-AH1/19

FIG.9B

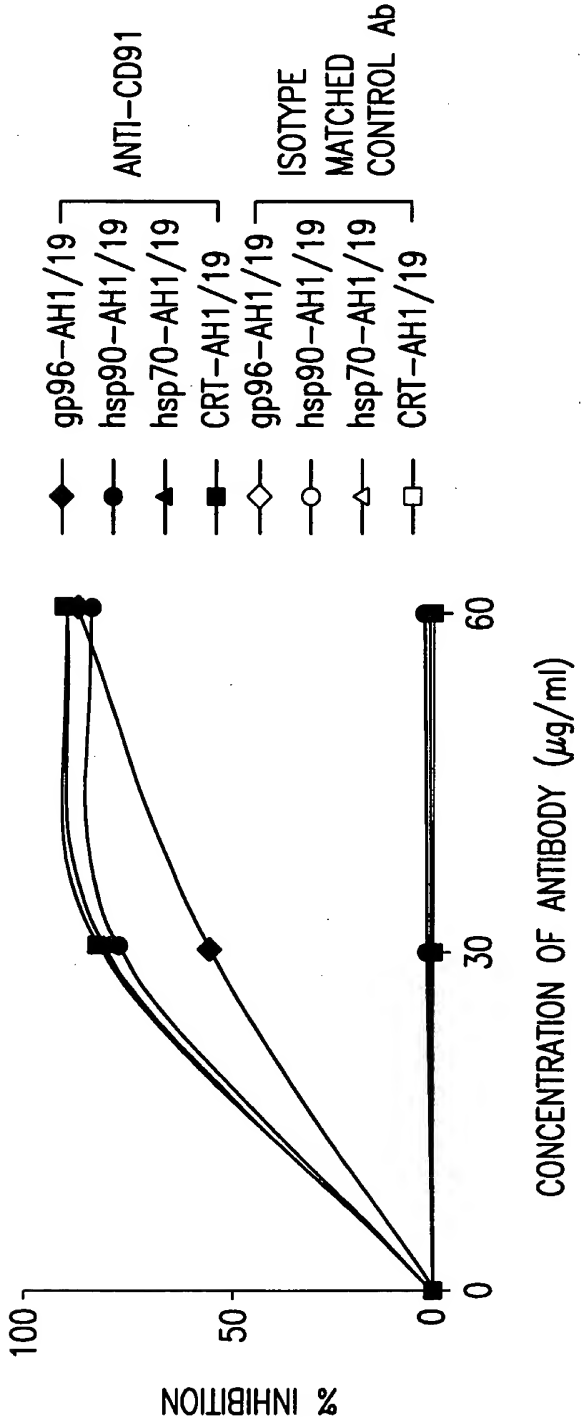
ANTI-CD91
gp96-AH1/19
hsp90-AH1/19
hsp70-AH1/19
CRT-AH1/19
ISOTYPE MATCHED CONTROL Ab
gp96-AH1/19
hsp90-AH1/19
hsp70-AH1/19
CRT-AH1/19
% INHIBITION
100
50
0
0
30
60
CONCENTRATION OF ANTIBODY (μg/ml)

FIG.9C

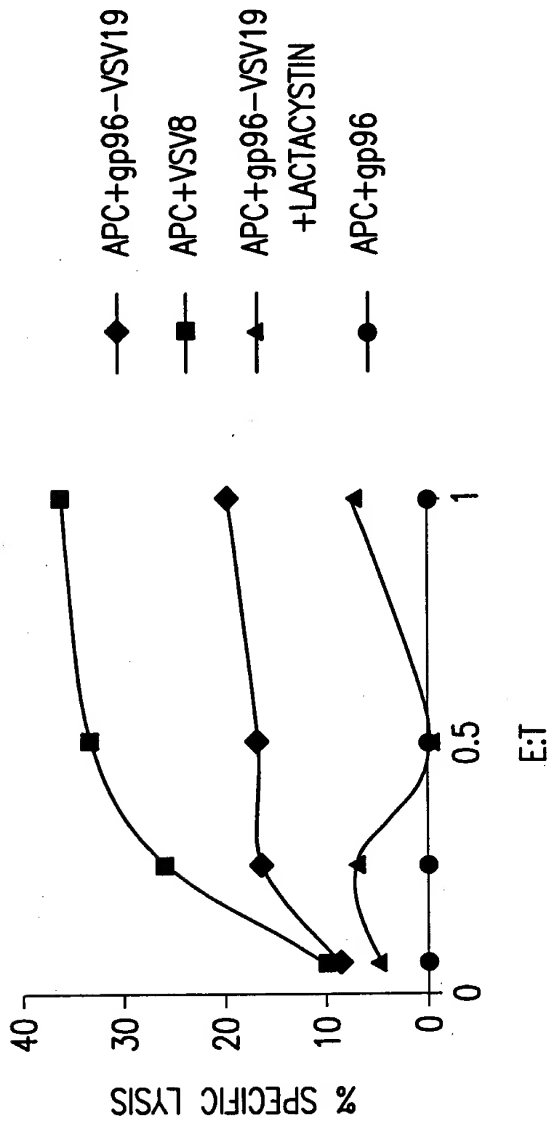
APC+gp96–VSV19
APC+VSV8
APC+gp96–VSV19
+LACTACYSTIN
APC+gp96
% SPECIFIC LYSIS
40
30
20
10
0
0
0.5
1
E:T

FIG.10A

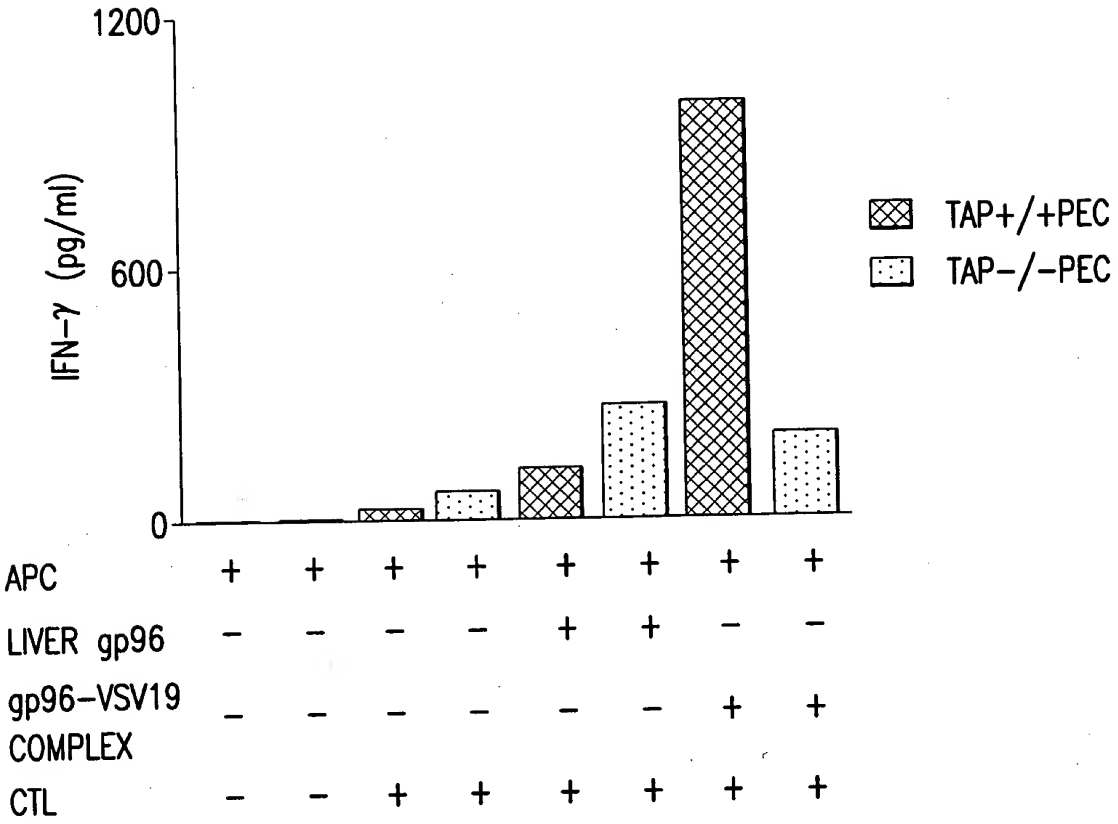
1200
600
0
IFN-γ (pg/ml)
TAP+/+PEC
TAP-/-PEC
APC + + + + + + + +
LIVER gp96 - - - - + + - -
gp96-VSV19 COMPLEX - - - - - - + +
CTL - - + + + + + +

FIG.10B

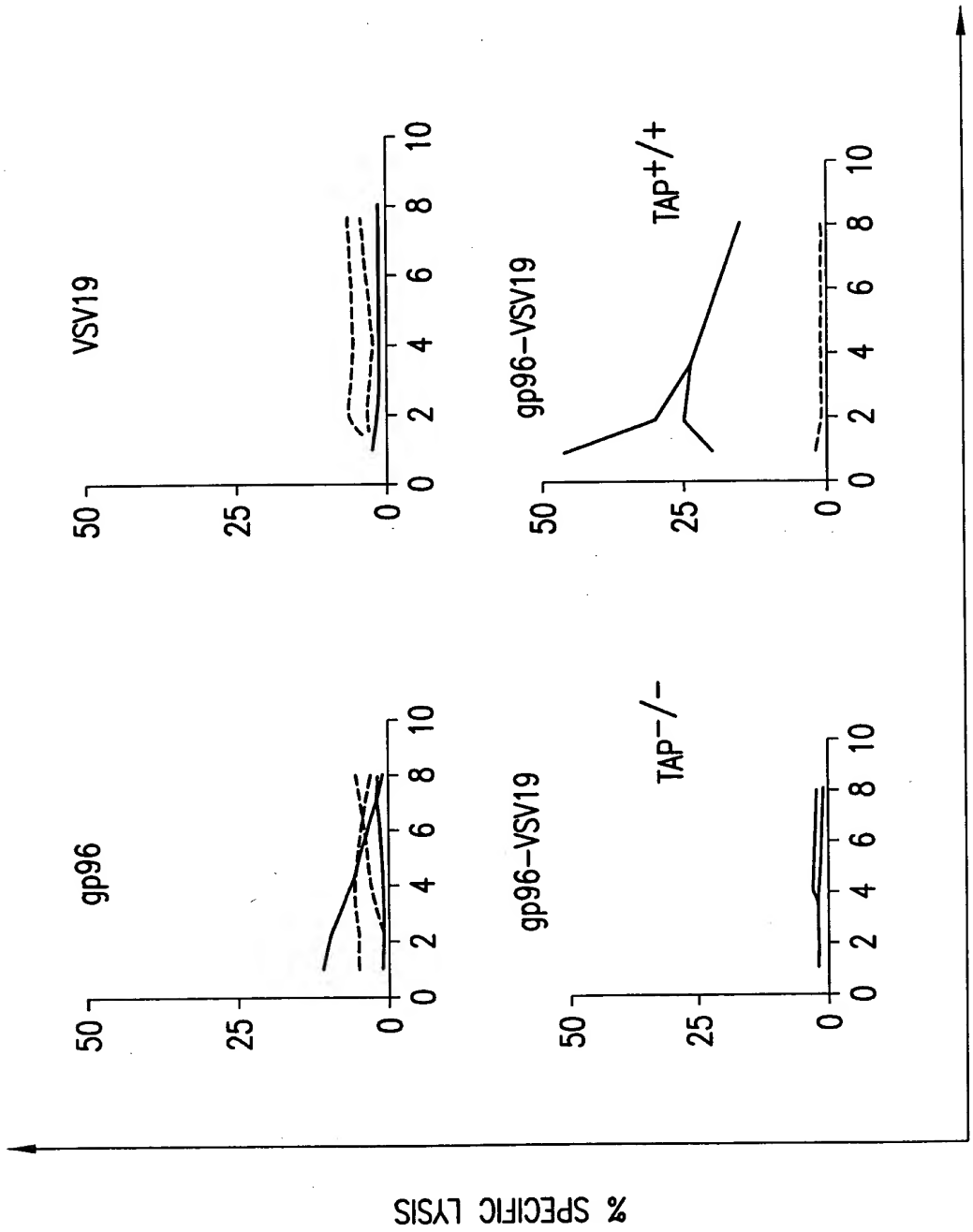
VSV19
gp96
gp96–VSV19
TAP+/+
gp96–VSV19
TAP−/−
50
25
0
0 2 4 6 8 10
% SPECIFIC LYSIS
DILUTION OF EFFECTOR

FIG.10C

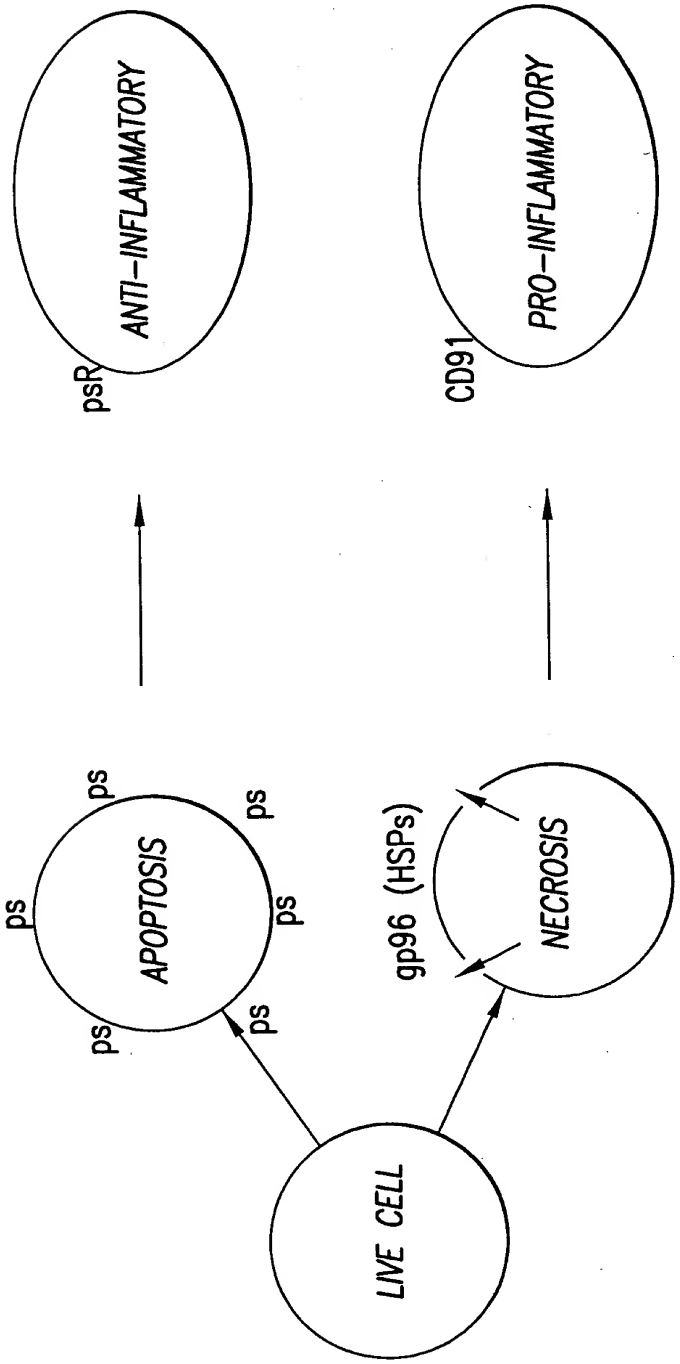
ANTI-INFLAMMATORY
psR
PRO-INFLAMMATORY
CD91
ps
ps
ps
ps
ps
ps
APOPTOSIS
gp96 (HSPs)
NECROSIS
LIVE CELL

FIG. 11

```
CGCTGCTCCC CGCCAGTGCA CTGAGGAGGC GGAAACGGGG GAGCCCCTAG TGCTCCATCA    60
GGCCCCTACC AAGGCACCCC CATCGGGTCC ACGCCCCCCA CCCCCCACCC CGCCTCCTCC   120
CAATTGTGCA TTTTTGCAGC CGGAGTCGGC TCCGAGATGG GGCTGTGAGC TTCGCCCTGG   180
GAGGGGGAGA GGAGCGAGGA GTAAAGCAGG GGTGAAGGGT TCGAATTTGG GGGCAGGGGG   240
CGCACCCGCG TCAGCAGGCC CTTCCCAGGG GGCTCGGAAC TGTACCATTT CACCTATGCC   300
CCTGGTTCGC TTTGCTTAAG GAAGGATAAG ATAGAAGAGT CGGGGAGAGG AAGATAAAGG   360
GGGACCCCCC AATTGGGGGG GGCGAGGACA AGAAGTAACA GGACCAGAGG GTGGGGGCTG   420
CTGTTTGCAT CGGCCCACAC C ATG CTG ACC CCG CCG TTG CTG CTG CTC GTG      471
                       Met Leu Thr Pro Pro Leu Leu Leu Leu Val
                        1               5                  10

CCG CTG CTT TCA GCT CTG GTC TCC GGG GCC ACT ATG GAT GCC CCT AAA      519
Pro Leu Leu Ser Ala Leu Val Ser Gly Ala Thr Met Asp Ala Pro Lys
                15                  20                  25

ACT TGC AGC CCT AAG CAG TTT GCC TGC AGA GAC CAA ATC ACC TGT ATC      567
Thr Cys Ser Pro Lys Gln Phe Ala Cys Arg Asp Gln Ile Thr Cys Ile
            30                  35                  40

TCA AAG GGC TGG CGG TGT GAC GGT GAA AGA GAT TGC CCC GAC GGC TCT      615
Ser Lys Gly Trp Arg Cys Asp Gly Glu Arg Asp Cys Pro Asp Gly Ser
        45                  50                  55

GAT GAA GCC CCT GAG ATC TGT CCA CAG AGT AAA GCC CAG AGA TGC CCG      663
Asp Glu Ala Pro Glu Ile Cys Pro Gln Ser Lys Ala Gln Arg Cys Pro
    60                  65                  70

CCA AAT GAG CAC AGT TGT CTG GGG ACT GAG CTA TGT GTC CCC ATG TCT      711
Pro Asn Glu His Ser Cys Leu Gly Thr Glu Leu Cys Val Pro Met Ser
75                  80                  85                  90

CGT CTC TGC AAC GGG ATC CAG GAC TGC ATG GAT GGC TCA GAC GAG GGT      759
Arg Leu Cys Asn Gly Ile Gln Asp Cys Met Asp Gly Ser Asp Glu Gly
                95                  100                 105

GCT CAC TGC CGA GAG CTC CGA GCC AAC TGT TCT CGA ATG GGT TGT CAA      807
Ala His Cys Arg Glu Leu Arg Ala Asn Cys Ser Arg Met Gly Cys Gln
            110                 115                 120

CAC CAT TGT GTA CCT ACA CCC AGT GGG CCC ACG TGC TAC TGT AAC AGC      855
His His Cys Val Pro Thr Pro Ser Gly Pro Thr Cys Tyr Cys Asn Ser
        125                 130                 135
```

FIG.12A-1

```
AGC TTC CAG CTC GAG GCA GAT GGC AAG ACG TGC AAA GAT TTT GAC GAG      903
Ser Phe Gln Leu Glu Ala Asp Gly Lys Thr Cys Lys Asp Phe Asp Glu
    140                 145                 150

TGT TCC GTG TAT GGC ACC TGC AGC CAG CTT TGC ACC AAC ACA GAT GGC      951
Cys Ser Val Tyr Gly Thr Cys Ser Gln Leu Cys Thr Asn Thr Asp Gly
155                 160                 165                 170

TCC TTC ACA TGT GGC TGT GTT GAA GGC TAC CTG CTG CAA CCG GAC AAC      999
Ser Phe Thr Cys Gly Cys Val Glu Gly Tyr Leu Leu Gln Pro Asp Asn
                175                 180                 185

CGC TCC TGC AAG GCC AAG AAT GAG CCA GTA GAT CGG CCG CCA GTG CTA     1047
Arg Ser Cys Lys Ala Lys Asn Glu Pro Val Asp Arg Pro Pro Val Leu
            190                 195                 200

CTG ATT GCC AAC TCT CAG AAC ATC CTA GCT ACG TAC CTG AGT GGG GCC     1095
Leu Ile Ala Asn Ser Gln Asn Ile Leu Ala Thr Tyr Leu Ser Gly Ala
        205                 210                 215

CAA GTG TCT ACC ATC ACA CCC ACC AGC ACC CGA CAA ACC ACG GCC ATG     1143
Gln Val Ser Thr Ile Thr Pro Thr Ser Thr Arg Gln Thr Thr Ala Met
    220                 225                 230

GAC TTC AGT TAT GCC AAT GAG ACC GTA TGC TGG GTG CAC GTT GGG GAC     1191
Asp Phe Ser Tyr Ala Asn Glu Thr Val Cys Trp Val His Val Gly Asp
235                 240                 245                 250

AGT GCT GCC CAG ACA CAG CTC AAG TGT GCC CGG ATG CCT GGC CTG AAG     1239
Ser Ala Ala Gln Thr Gln Leu Lys Cys Ala Arg Met Pro Gly Leu Lys
                255                 260                 265

GGC TTT GTG GAT GAG CAT ACC ATC AAC ATC TCC CTC AGC CTG CAC CAC     1287
Gly Phe Val Asp Glu His Thr Ile Asn Ile Ser Leu Ser Leu His His
            270                 275                 280

GTG GAG CAG ATG GCA ATC GAC TGG CTG ACG GGA AAC TTC TAC TTT GTC     1335
Val Glu Gln Met Ala Ile Asp Trp Leu Thr Gly Asn Phe Tyr Phe Val
        285                 290                 295

GAC GAC ATT GAC GAC AGG ATC TTT GTC TGT AAC CGA AAC GGG GAC ACC     1383
Asp Asp Ile Asp Asp Arg Ile Phe Val Cys Asn Arg Asn Gly Asp Thr
    300                 305                 310
```

FIG.12A-2

```
TGT GTC ACT CTG CTG GAC CTG GAA CTC TAC AAC CCC AAA GGC ATC GCC    1431
Cys Val Thr Leu Leu Asp Leu Glu Leu Tyr Asn Pro Lys Gly Ile Ala
315                 320                 325                 330

TTG GAC CCC GCC ATG GGG AAG GTG TTC TTC ACT GAC TAC GGG CAG ATC    1479
Leu Asp Pro Ala Met Gly Lys Val Phe Phe Thr Asp Tyr Gly Gln Ile
                335                 340                 345

CCA AAG GTG GAG CGC TGT GAC ATG GAT GGA CAG AAC CGC ACC AAG CTG    1527
Pro Lys Val Glu Arg Cys Asp Met Asp Gly Gln Asn Arg Thr Lys Leu
            350                 355                 360

GTG GAT AGC AAG ATC GTG TTT CCA CAC GGC ATC ACC CTG GAC CTG GTC    1575
Val Asp Ser Lys Ile Val Phe Pro His Gly Ile Thr Leu Asp Leu Val
        365                 370                 375

AGC CGC CTC GTC TAC TGG GCG GAC GCC TAC CTA GAC TAC ATC GAG GTG    1623
Ser Arg Leu Val Tyr Trp Ala Asp Ala Tyr Leu Asp Tyr Ile Glu Val
    380                 385                 390

GTA GAC TAC GAA GGG AAG GGT CGG CAG ACC ATC ATC CAA GGC ATC CTG    1671
Val Asp Tyr Glu Gly Lys Gly Arg Gln Thr Ile Ile Gln Gly Ile Leu
395                 400                 405                 410

ATC GAG CAC CTG TAC GGC CTG ACC GTG TTT GAG AAC TAT CTC TAC GCC    1719
Ile Glu His Leu Tyr Gly Leu Thr Val Phe Glu Asn Tyr Leu Tyr Ala
                415                 420                 425

ACC AAC TCG GAC AAT GCC AAC ACG CAG CAG AAG ACG AGC GTG ATC CGA    1767
Thr Asn Ser Asp Asn Ala Asn Thr Gln Gln Lys Thr Ser Val Ile Arg
            430                 435                 440

GTG AAC CGG TTC AAC AGT ACT GAG TAC CAG GTC GTC ACC CGT GTG GAC    1815
Val Asn Arg Phe Asn Ser Thr Glu Tyr Gln Val Val Thr Arg Val Asp
        445                 450                 455

AAG GGT GGT GCC CTG CAT ATC TAC CAC CAG CGA CGC CAG CCC CGA GTG    1863
Lys Gly Gly Ala Leu His Ile Tyr His Gln Arg Arg Gln Pro Arg Val
    460                 465                 470

CGG AGT CAC GCC TGT GAG AAT GAC CAG TAC GGG AAG CCA GGT GGC TGC    1911
Arg Ser His Ala Cys Glu Asn Asp Gln Tyr Gly Lys Pro Gly Gly Cys
475                 480                 485                 490
```

FIG.12A-3

```
TCC GAC ATC TGC CTC CTG GCC AAC AGT CAC AAG GCA AGG ACC TGC AGG    1959
Ser Asp Ile Cys Leu Leu Ala Asn Ser His Lys Ala Arg Thr Cys Arg
                495                 500                 505

TGC AGG TCT GGC TTC AGC CTG GGA AGT GAT GGG AAG TCT TGT AAG AAA    2007
Cys Arg Ser Gly Phe Ser Leu Gly Ser Asp Gly Lys Ser Cys Lys Lys
            510                 515                 520

CCT GAA CAT GAG CTG TTC CTC GTG TAT GGC AAG GGC CGA CCA GGC ATC    2055
Pro Glu His Glu Leu Phe Leu Val Tyr Gly Lys Gly Arg Pro Gly Ile
        525                 530                 535

ATT AGA GGC ATG GAC ATG GGG GCC AAG GTC CCA GAT GAG CAC ATG ATC    2103
Ile Arg Gly Met Asp Met Gly Ala Lys Val Pro Asp Glu His Met Ile
    540                 545                 550

CCC ATC GAG AAC CTT ATG AAT CCA CGC GCT CTG GAC TTC CAC GCC GAG    2151
Pro Ile Glu Asn Leu Met Asn Pro Arg Ala Leu Asp Phe His Ala Glu
555                 560                 565                 570

ACC GGC TTC ATC TAC TTT GCT GAC ACC ACC AGC TAC CTC ATT GGC CGC    2199
Thr Gly Phe Ile Tyr Phe Ala Asp Thr Thr Ser Tyr Leu Ile Gly Arg
                575                 580                 585

CAG AAA ATT GAT GGC ACG GAG AGA GAG ACT ATC CTG AAG GAT GGC ATC    2247
Gln Lys Ile Asp Gly Thr Glu Arg Glu Thr Ile Leu Lys Asp Gly Ile
            590                 595                 600

CAC AAT GTG GAG GGC GTA GCC GTG GAC TGG ATG GGA GAC AAT CTT TAC    2295
His Asn Val Glu Gly Val Ala Val Asp Trp Met Gly Asp Asn Leu Tyr
        605                 610                 615

TGG ACT GAT GAT GGC CCC AAG AAG ACC ATT AGT GTG GCC AGG CTG GAG    2343
Trp Thr Asp Asp Gly Pro Lys Lys Thr Ile Ser Val Ala Arg Leu Glu
    620                 625                 630

AAA GCC GCT CAG ACC CGG AAG ACT CTA ATT GAG GGC AAG ATG ACA CAC    2391
Lys Ala Ala Gln Thr Arg Lys Thr Leu Ile Glu Gly Lys Met Thr His
635                 640                 645                 650

CCC AGG GCC ATT GTA GTG GAT CCA CTC AAT GGG TGG ATG TAC TGG ACA    2439
Pro Arg Ala Ile Val Val Asp Pro Leu Asn Gly Trp Met Tyr Trp Thr
                655                 660                 665
```

FIG.12A-4

```
GAC TGG GAG GAG GAC CCC AAG GAC AGT CGG CGA GGG CGG CTC GAG AGG     2487
Asp Trp Glu Glu Asp Pro Lys Asp Ser Arg Arg Gly Arg Leu Glu Arg
            670                 675                 680

GCT TGG ATG GAC GGC TCA CAC CGA GAT ATC TTT GTC ACC TCC AAG ACA     2535
Ala Trp Met Asp Gly Ser His Arg Asp Ile Phe Val Thr Ser Lys Thr
        685                 690                 695

GTG CTT TGG CCC AAT GGG CTA AGC CTG GAT ATC CCA GCC GGA CGC CTC     2583
Val Leu Trp Pro Asn Gly Leu Ser Leu Asp Ile Pro Ala Gly Arg Leu
    700                 705                 710

TAC TGG GTG GAT GCC TTC TAT GAC CGA ATT GAG ACC ATA CTG CTC AAT     2631
Tyr Trp Val Asp Ala Phe Tyr Asp Arg Ile Glu Thr Ile Leu Leu Asn
715                 720                 725                 730

GGC ACA GAC CGG AAG ATT GTA TAT GAG GGT CCT GAA CTG AAT CAT GCC     2679
Gly Thr Asp Arg Lys Ile Val Tyr Glu Gly Pro Glu Leu Asn His Ala
                735                 740                 745

TTC GGC CTG TGT CAC CAT GGC AAC TAC CTC TTT TGG ACC GAG TAC CGG     2727
Phe Gly Leu Cys His His Gly Asn Tyr Leu Phe Trp Thr Glu Tyr Arg
            750                 755                 760

AGC GGC AGC GTC TAC CGC TTG GAA CGG GGC GTG GCA GGC GCA CCG CCC     2775
Ser Gly Ser Val Tyr Arg Leu Glu Arg Gly Val Ala Gly Ala Pro Pro
        765                 770                 775

ACT GTG ACC CTT CTG CGC AGC GAG AGA CCG CCT ATC TTT GAG ATC CGA     2823
Thr Val Thr Leu Leu Arg Ser Glu Arg Pro Pro Ile Phe Glu Ile Arg
    780                 785                 790

ATG TAC GAC GCG CAC GAG CAG CAA GTG GGT ACC AAC AAA TGC CGG GTA     2871
Met Tyr Asp Ala His Glu Gln Gln Val Gly Thr Asn Lys Cys Arg Val
795                 800                 805                 810

AAT AAC GGA GGC TGC AGC AGC CTG TGC CTC GCC ACC CCC GGG AGC CGC     2919
Asn Asn Gly Gly Cys Ser Ser Leu Cys Leu Ala Thr Pro Gly Ser Arg
                815                 820                 825

CAG TGT GCC TGT GCC GAG GAC CAG GTG TTG GAC ACA GAT GGT GTC ACC     2967
Gln Cys Ala Cys Ala Glu Asp Gln Val Leu Asp Thr Asp Gly Val Thr
            830                 835                 840
```

FIG.12A-5

```
TGC TTG GCG AAC CCA TCC TAC GTG CCC CCA CCC CAG TGC CAG CCG GGC    3015
Cys Leu Ala Asn Pro Ser Tyr Val Pro Pro Pro Gln Cys Gln Pro Gly
        845                 850                 855

CAG TTT GCC TGT GCC AAC AAC CGC TGC ATC CAG GAG CGC TGG AAG TGT    3063
Gln Phe Ala Cys Ala Asn Asn Arg Cys Ile Gln Glu Arg Trp Lys Cys
    860                 865                 870

GAC GGA GAC AAC GAC TGT CTG GAC AAC AGC GAT GAG GCC CCA GCA CTG    3111
Asp Gly Asp Asn Asp Cys Leu Asp Asn Ser Asp Glu Ala Pro Ala Leu
875                 880                 885                 890

TGC CAT CAA CAC ACC TGT CCC TCG GAC CGA TTC AAG TGT GAG AAC AAC    3159
Cys His Gln His Thr Cys Pro Ser Asp Arg Phe Lys Cys Glu Asn Asn
                895                 900                 905

CGG TGT ATC CCC AAC CGC TGG CTC TGT GAT GGG GAT AAT GAT TGT GGC    3207
Arg Cys Ile Pro Asn Arg Trp Leu Cys Asp Gly Asp Asn Asp Cys Gly
            910                 915                 920

AAC AGC GAG GAC GAA TCC AAT GCC ACG TGC TCA GCC CGC ACC TGT CCA    3255
Asn Ser Glu Asp Glu Ser Asn Ala Thr Cys Ser Ala Arg Thr Cys Pro
        925                 930                 935

CCC AAC CAG TTC TCC TGT GCC AGT GGC CGA TGC ATT CCT ATC TCA TGG    3303
Pro Asn Gln Phe Ser Cys Ala Ser Gly Arg Cys Ile Pro Ile Ser Trp
    940                 945                 950

ACC TGT GAT CTG GAT GAT GAC TGT GGG GAC CGG TCC GAT GAG TCA GCC    3351
Thr Cys Asp Leu Asp Asp Asp Cys Gly Asp Arg Ser Asp Glu Ser Ala
955                 960                 965                 970

TCA TGC GCC TAC CCC ACC TGC TTC CCC CTG ACT CAA TTT ACC TGC AAC    3399
Ser Cys Ala Tyr Pro Thr Cys Phe Pro Leu Thr Gln Phe Thr Cys Asn
                975                 980                 985

AAT GGC AGA TGT ATT AAC ATC AAC TGG CGG TGT GAC AAC GAC AAT GAC    3447
Asn Gly Arg Cys Ile Asn Ile Asn Trp Arg Cys Asp Asn Asp Asn Asp
            990                 995                1000

TGT GGG GAC AAC AGC GAC GAA GCC GGC TGC AGT CAC TCC TGC TCC AGT    3495
Cys Gly Asp Asn Ser Asp Glu Ala Gly Cys Ser His Ser Cys Ser Ser
        1005                1010                1015
```

FIG.12A-6

```
ACC CAG TTC AAG TGC AAC AGT GGC AGA TGC ATC CCC GAG CAC TGG ACG    3543
Thr Gln Phe Lys Cys Asn Ser Gly Arg Cys Ile Pro Glu His Trp Thr
   1020                1025                1030

TGT GAT GGG GAC AAT GAT TGT GGG GAC TAC AGC GAC GAG ACA CAC GCC    3591
Cys Asp Gly Asp Asn Asp Cys Gly Asp Tyr Ser Asp Glu Thr His Ala
1035                1040                1045                1050

AAC TGT ACC AAC CAG GCT ACA AGA CCT CCT GGT GGC TGC CAC TCG GAT    3639
Asn Cys Thr Asn Gln Ala Thr Arg Pro Pro Gly Gly Cys His Ser Asp
                1055                1060                1065

GAG TTC CAG TGC CCG CTA GAT GGC CTG TGC ATC CCC CTG AGG TGG CGC    3687
Glu Phe Gln Cys Pro Leu Asp Gly Leu Cys Ile Pro Leu Arg Trp Arg
           1070                1075                1080

TGC GAC GGG GAC ACC GAC TGC ATG GAT TCC AGC GAT GAG AAG AGC TGT    3735
Cys Asp Gly Asp Thr Asp Cys Met Asp Ser Ser Asp Glu Lys Ser Cys
       1085                1090                1095

GAG GGC GTG ACC CAT GTT TGT GAC CCG AAT GTC AAG TTT GGC TGC AAG    3783
Glu Gly Val Thr His Val Cys Asp Pro Asn Val Lys Phe Gly Cys Lys
   1100                1105                1110

GAC TCC GCC CGG TGC ATC AGC AAG GCG TGG GTG TGT GAT GGC GAC AGC    3831
Asp Ser Ala Arg Cys Ile Ser Lys Ala Trp Val Cys Asp Gly Asp Ser
1115                1120                1125                1130

GAC TGT GAA GAT AAC TCC GAC GAG GAG AAC TGT GAG GCC CTG GCC TGC    3879
Asp Cys Glu Asp Asn Ser Asp Glu Glu Asn Cys Glu Ala Leu Ala Cys
                1135                1140                1145

AGG CCA CCC TCC CAT CCC TGC GCC AAC AAC ACC TCT GTC TGC CTG CCT    3927
Arg Pro Pro Ser His Pro Cys Ala Asn Asn Thr Ser Val Cys Leu Pro
           1150                1155                1160

CCT GAC AAG CTG TGC GAC GGC AAG GAT GAC TGT GGA GAC GGC TCG GAT    3975
Pro Asp Lys Leu Cys Asp Gly Lys Asp Asp Cys Gly Asp Gly Ser Asp
       1165                1170                1175

GAG GGC GAG CTC TGT GAC CAG TGT TCT CTG AAT AAT GGT GGC TGT AGT    4023
Glu Gly Glu Leu Cys Asp Gln Cys Ser Leu Asn Asn Gly Gly Cys Ser
   1180                1185                1190
```

FIG.12A-7

```
CAC AAC TGC TCA GTG GCC CCT GGT GAA GGC ATC GTG TGC TCT TGC CCT    4071
His Asn Cys Ser Val Ala Pro Gly Glu Gly Ile Val Cys Ser Cys Pro
1195                1200                1205                1210

CTG GGC ATG GAG CTG GGC TCT GAC AAC CAC ACC TGC CAG ATC CAG AGC    4119
Leu Gly Met Glu Leu Gly Ser Asp Asn His Thr Cys Gln Ile Gln Ser
                1215                1220                1225

TAC TGT GCC AAG CAC CTC AAA TGC AGC CAG AAG TGT GAC CAG AAC AAG    4167
Tyr Cys Ala Lys His Leu Lys Cys Ser Gln Lys Cys Asp Gln Asn Lys
            1230                1235                1240

TTC AGT GTG AAG TGC TCC TGC TAC GAG GGC TGG GTC TTG GAG CCT GAC    4215
Phe Ser Val Lys Cys Ser Cys Tyr Glu Gly Trp Val Leu Glu Pro Asp
        1245                1250                1255

GGG GAA ACG TGC CGC AGT CTG GAT CCC TTC AAA CTG TTC ATC ATC TTC    4263
Gly Glu Thr Cys Arg Ser Leu Asp Pro Phe Lys Leu Phe Ile Ile Phe
    1260                1265                1270

TCC AAC CGC CAC GAG ATC AGG CGC ATT GAC CTT CAC AAG GGG GAC TAC    4311
Ser Asn Arg His Glu Ile Arg Arg Ile Asp Leu His Lys Gly Asp Tyr
1275                1280                1285                1290

AGC GTC CTA GTG CCT GGC CTG CGC AAC ACT ATT GCC CTG GAC TTC CAC    4359
Ser Val Leu Val Pro Gly Leu Arg Asn Thr Ile Ala Leu Asp Phe His
                1295                1300                1305

CTC AGC CAG AGT GCC CTC TAC TGG ACC GAC GCG GTA GAG GAC AAG ATC    4407
Leu Ser Gln Ser Ala Leu Tyr Trp Thr Asp Ala Val Glu Asp Lys Ile
            1310                1315                1320

TAC CGT GGG AAA CTC CTG GAC AAC GGA GCC CTG ACC AGC TTT GAG GTG    4455
Tyr Arg Gly Lys Leu Leu Asp Asn Gly Ala Leu Thr Ser Phe Glu Val
        1325                1330                1335

GTG ATT CAG TAT GGC TTG GCC ACA CCA GAG GGC CTG GCT GTA GAT TGG    4503
Val Ile Gln Tyr Gly Leu Ala Thr Pro Glu Gly Leu Ala Val Asp Trp
    1340                1345                1350

ATT GCA GGC AAC ATC TAC TGG GTG GAG AGC AAC CTG GAC CAG ATC GAA    4551
Ile Ala Gly Asn Ile Tyr Trp Val Glu Ser Asn Leu Asp Gln Ile Glu
1355                1360                1365                1370
```

FIG.12A-8

```
GTG GCC AAG CTG GAC GGA ACC CTC CGA ACC ACT CTG CTG GCG GGT GAC    4599
Val Ala Lys Leu Asp Gly Thr Leu Arg Thr Thr Leu Leu Ala Gly Asp
                1375                1380                1385

ATT GAG CAC CCG AGG GCC ATC GCT CTG GAC CCT CGG GAT GGG ATT CTG    4647
Ile Glu His Pro Arg Ala Ile Ala Leu Asp Pro Arg Asp Gly Ile Leu
          1390                1395                1400

TTT TGG ACA GAC TGG GAT GCC AGC CTG CCA CGA ATC GAG GCT GCA TCC    4695
Phe Trp Thr Asp Trp Asp Ala Ser Leu Pro Arg Ile Glu Ala Ala Ser
      1405                1410                1415

ATG AGT GGA GCT GGC CGC CGA ACC ATC CAC CGG GAG ACA GGC TCT GGG    4743
Met Ser Gly Ala Gly Arg Arg Thr Ile His Arg Glu Thr Gly Ser Gly
  1420                1425                1430

GGC TGC GCC AAT GGG CTC ACC GTG GAT TAC CTG GAG AAG CGC ATC CTC    4791
Gly Cys Ala Asn Gly Leu Thr Val Asp Tyr Leu Glu Lys Arg Ile Leu
1435                1440                1445                1450

TGG ATT GAT GCT AGG TCA GAT GCC ATC TAT TCA GCC CGG TAT GAC GGC    4839
Trp Ile Asp Ala Arg Ser Asp Ala Ile Tyr Ser Ala Arg Tyr Asp Gly
                1455                1460                1465

TCC GGC CAC ATG GAG GTG CTT CGG GGA CAC GAG TTC CTG TCA CAC CCA    4887
Ser Gly His Met Glu Val Leu Arg Gly His Glu Phe Leu Ser His Pro
          1470                1475                1480

TTT GCC GTG ACA CTG TAC GGT GGG GAG GTG TAC TGG ACC GAC TGG CGA    4935
Phe Ala Val Thr Leu Tyr Gly Gly Glu Val Tyr Trp Thr Asp Trp Arg
      1485                1490                1495

ACA AAT ACA CTG GCT AAG GCC AAC AAG TGG ACT GGC CAC AAC GTC ACC    4983
Thr Asn Thr Leu Ala Lys Ala Asn Lys Trp Thr Gly His Asn Val Thr
  1500                1505                1510

GTG GTA CAG AGG ACC AAC ACC CAG CCC TTC GAC CTG CAG GTG TAT CAC    5031
Val Val Gln Arg Thr Asn Thr Gln Pro Phe Asp Leu Gln Val Tyr His
1515                1520                1525                1530

CCT TCC CGG CAG CCC ATG GCT CCA AAC CCA TGT GAG GCC AAT GGC GGC    5079
Pro Ser Arg Gln Pro Met Ala Pro Asn Pro Cys Glu Ala Asn Gly Gly
                1535                1540                1545
```

FIG.12A-9

```
CGG GGC CCC TGT TCC CAT CTG TGC CTC ATC AAC TAC AAC CGG ACC GTC    5127
Arg Gly Pro Cys Ser His Leu Cys Leu Ile Asn Tyr Asn Arg Thr Val
          1550                1555                1560

TCC TGG GCC TGT CCC CAC CTC ATG AAG CTG CAC AAG GAC AAC ACC ACC    5175
Ser Trp Ala Cys Pro His Leu Met Lys Leu His Lys Asp Asn Thr Thr
       1565                1570                1575

TGC TAT GAG TTT AAG AAG TTC CTG CTG TAC GCA CGT CAG ATG GAG ATC    5223
Cys Tyr Glu Phe Lys Lys Phe Leu Leu Tyr Ala Arg Gln Met Glu Ile
   1580                1585                1590

CGG GGC GTG GAC CTG GAT GCC CCG TAC TAC AAT TAT ATC ATC TCC TTC    5271
Arg Gly Val Asp Leu Asp Ala Pro Tyr Tyr Asn Tyr Ile Ile Ser Phe
1595                1600                1605                1610

ACG GTG CCT GAT ATC GAC AAT GTC ACG GTG CTG GAC TAT GAT GCC CGA    5319
Thr Val Pro Asp Ile Asp Asn Val Thr Val Leu Asp Tyr Asp Ala Arg
                1615                1620                1625

GAG CAG CGA GTT TAC TGG TCT GAT GTG CGG ACT CAA GCC ATC AAA AGG    5367
Glu Gln Arg Val Tyr Trp Ser Asp Val Arg Thr Gln Ala Ile Lys Arg
          1630                1635                1640

GCA TTT ATC AAC GGC ACT GGC GTG GAG ACC GTT GTC TCT GCA GAC TTG    5415
Ala Phe Ile Asn Gly Thr Gly Val Glu Thr Val Val Ser Ala Asp Leu
       1645                1650                1655

CCC AAC GCC CAC GGG CTG GCT GTG GAC TGG GTC TCC CGA AAT CTG TTT    5463
Pro Asn Ala His Gly Leu Ala Val Asp Trp Val Ser Arg Asn Leu Phe
   1660                1665                1670

TGG ACA AGT TAC GAC ACC AAC AAG AAG CAG ATT AAC GTG GCC CGG CTG    5511
Trp Thr Ser Tyr Asp Thr Asn Lys Lys Gln Ile Asn Val Ala Arg Leu
1675                1680                1685                1690

GAC GGC TCC TTC AAG AAT GCG GTG GTG CAG GGC CTG GAG CAG CCC CAC    5559
Asp Gly Ser Phe Lys Asn Ala Val Val Gln Gly Leu Glu Gln Pro His
                1695                1700                1705

GGC CTG GTC GTC CAC CCG CTT CGT GGC AAG CTC TAC TGG ACT GAT GGG    5607
Gly Leu Val Val His Pro Leu Arg Gly Lys Leu Tyr Trp Thr Asp Gly
          1710                1715                1720
```

FIG.12A-10

```
GAC AAC ATC AGC ATG GCC AAC ATG GAT GGG AGC AAC CAC ACT CTG CTC      5655
Asp Asn Ile Ser Met Ala Asn Met Asp Gly Ser Asn His Thr Leu Leu
      1725                1730                1735

TTC AGT GGC CAG AAG GGC CCT GTG GGG TTG GCC ATT GAC TTC CCT GAG      5703
Phe Ser Gly Gln Lys Gly Pro Val Gly Leu Ala Ile Asp Phe Pro Glu
   1740                1745                1750

AGC AAA CTC TAC TGG ATC AGC TCT GGG AAC CAC ACA ATC AAC CGT TGC      5751
Ser Lys Leu Tyr Trp Ile Ser Ser Gly Asn His Thr Ile Asn Arg Cys
1755                1760                1765                1770

AAT CTG GAT GGG AGC GAG CTG GAG GTC ATC GAC ACC ATG CGG AGC CAG      5799
Asn Leu Asp Gly Ser Glu Leu Glu Val Ile Asp Thr Met Arg Ser Gln
                1775                1780                1785

CTG GGC AAG GCC ACT GCC CTG GCC ATC ATG GGG GAC AAG CTG TGG TGG      5847
Leu Gly Lys Ala Thr Ala Leu Ala Ile Met Gly Asp Lys Leu Trp Trp
            1790                1795                1800

GCA GAT CAG GTG TCA GAG AAG ATG GGC ACG TGC AAC AAA GCC GAT GGC      5895
Ala Asp Gln Val Ser Glu Lys Met Gly Thr Cys Asn Lys Ala Asp Gly
      1805                1810                1815

TCT GGG TCC GTG GTG CTG CGG AAC AGT ACC ACG TTG GTT ATG CAC ATG      5943
Ser Gly Ser Val Val Leu Arg Asn Ser Thr Thr Leu Val Met His Met
   1820                1825                1830

AAG GTG TAT GAC GAG AGC ATC CAG CTA GAG CAT GAG GGC ACC AAC CCC      5991
Lys Val Tyr Asp Glu Ser Ile Gln Leu Glu His Glu Gly Thr Asn Pro
1835                1840                1845                1850

TGC AGT GTC AAC AAC GGA GAC TGT TCC CAG CTC TGC CTG CCA ACA TCA      6039
Cys Ser Val Asn Asn Gly Asp Cys Ser Gln Leu Cys Leu Pro Thr Ser
                1855                1860                1865

GAG ACG ACT CGC TCC TGT ATG TGT ACA GCC GGT TAC AGC CTC CGG AGC      6087
Glu Thr Thr Arg Ser Cys Met Cys Thr Ala Gly Tyr Ser Leu Arg Ser
            1870                1875                1880

GGA CAG CAG GCC TGT GAG GGT GTG GGC TCT TTT CTC CTG TAC TCT GTA      6135
Gly Gln Gln Ala Cys Glu Gly Val Gly Ser Phe Leu Leu Tyr Ser Val
      1885                1890                1895
```

FIG.12A-11

```
CAT GAG GGA ATT CGG GGG ATT CCA CTA GAT CCC AAT GAC AAG TCG GAT    6183
His Glu Gly Ile Arg Gly Ile Pro Leu Asp Pro Asn Asp Lys Ser Asp
  1900                1905                1910

GCC CTG GTC CCA GTG TCC GGA ACT TCA CTG GCT GTC GGA ATC GAC TTC    6231
Ala Leu Val Pro Val Ser Gly Thr Ser Leu Ala Val Gly Ile Asp Phe
1915                1920                1925                1930

CAT GCC GAA AAT GAC ACT ATT TAT TGG GTG GAT ATG GGC CTA AGC ACC    6279
His Ala Glu Asn Asp Thr Ile Tyr Trp Val Asp Met Gly Leu Ser Thr
                1935                1940                1945

ATC AGC AGG GCC AAG CGT GAC CAG ACA TGG CGA GAG GAT GTG GTG ACC    6327
Ile Ser Arg Ala Lys Arg Asp Gln Thr Trp Arg Glu Asp Val Val Thr
          1950                1955                1960

AAC GGT ATT GGC CGT GTG GAG GGC ATC GCC GTG GAC TGG ATC GCA GGC    6375
Asn Gly Ile Gly Arg Val Glu Gly Ile Ala Val Asp Trp Ile Ala Gly
      1965                1970                1975

AAC ATA TAC TGG ACG GAC CAG GGC TTC GAT GTC ATC GAG GTT GCC CGG    6423
Asn Ile Tyr Trp Thr Asp Gln Gly Phe Asp Val Ile Glu Val Ala Arg
  1980                1985                1990

CTC AAT GGC TCT TTT CGT TAT GTG GTC ATT TCC CAG GGT CTG GAC AAG    6471
Leu Asn Gly Ser Phe Arg Tyr Val Val Ile Ser Gln Gly Leu Asp Lys
1995                2000                2005                2010

CCT CGG GCC ATC ACT GTC CAC CCA GAG AAG GGG TAC TTG TTC TGG ACC    6519
Pro Arg Ala Ile Thr Val His Pro Glu Lys Gly Tyr Leu Phe Trp Thr
                2015                2020                2025

GAG TGG GGT CAT TAC CCA CGT ATT GAG CGG TCT CGC CTT GAT GGC ACA    6567
Glu Trp Gly His Tyr Pro Arg Ile Glu Arg Ser Arg Leu Asp Gly Thr
          2030                2035                2040

GAG AGA GTG GTG TTG GTT AAT GTC AGC ATC AGC TGG CCC AAT GGC ATC    6615
Glu Arg Val Val Leu Val Asn Val Ser Ile Ser Trp Pro Asn Gly Ile
      2045                2050                2055

TCA GTA GAC TAT CAG GGC GGC AAG CTC TAC TGG TGT GAT GCT CGG ATG    6663
Ser Val Asp Tyr Gln Gly Gly Lys Leu Tyr Trp Cys Asp Ala Arg Met
  2060                2065                2070
```

FIG.12A-12

```
GAC AAG ATC GAG CGC ATC GAC CTG GAA ACG GGC GAG AAC CGG GAG GTG    6711
 Asp Lys Ile Glu Arg Ile Asp Leu Glu Thr Gly Glu Asn Arg Glu Val
2075                 2080                2085                2090

GTC CTG TCC AGC AAT AAC ATG GAT ATG TTC TCC GTG TCC GTG TTT GAG    6759
 Val Leu Ser Ser Asn Asn Met Asp Met Phe Ser Val Ser Val Phe Glu
                2095                2100                2105

GAC TTC ATC TAC TGG AGT GAC AGA ACT CAC GCC AAT GGC TCC ATC AAG    6807
 Asp Phe Ile Tyr Trp Ser Asp Arg Thr His Ala Asn Gly Ser Ile Lys
           2110                2115                2120

CGC GGC TGC AAA GAC AAT GCT ACA GAC TCC GTG CCT CTG AGG ACA GGC    6855
 Arg Gly Cys Lys Asp Asn Ala Thr Asp Ser Val Pro Leu Arg Thr Gly
      2125                2130                2135

ATT GGT GTT CAG CTT AAA GAC ATC AAG GTC TTC AAC AGG GAC AGG CAG    6903
 Ile Gly Val Gln Leu Lys Asp Ile Lys Val Phe Asn Arg Asp Arg Gln
 2140                2145                2150

AAG GGT ACC AAT GTG TGC GCG GTA GCC AAC GGC GGG TGC CAG CAG CTC    6951
 Lys Gly Thr Asn Val Cys Ala Val Ala Asn Gly Gly Cys Gln Gln Leu
2155                2160                2165                2170

TGC TTG TAT CGG GGT GGC GGA CAG CGA GCC TGT GCC TGT GCC CAC GGG    6999
 Cys Leu Tyr Arg Gly Gly Gly Gln Arg Ala Cys Ala Cys Ala His Gly
                2175                2180                2185

ATG CTG GCA GAA GAC GGG GCC TCA TGC CGA GAG TAC GCT GGC TAC CTG    7047
 Met Leu Ala Glu Asp Gly Ala Ser Cys Arg Glu Tyr Ala Gly Tyr Leu
           2190                2195                2200

CTC TAC TCA GAG CGG ACC ATC CTC AAG AGC ATC CAC CTG TCG GAT GAG    7095
 Leu Tyr Ser Glu Arg Thr Ile Leu Lys Ser Ile His Leu Ser Asp Glu
      2205                2210                2215

CGT AAC CTC AAC GCA CCG GTG CAG CCC TTT GAA GAC CCC GAG CAC ATG    7143
 Arg Asn Leu Asn Ala Pro Val Gln Pro Phe Glu Asp Pro Glu His Met
 2220                2225                2230

AAA AAT GTC ATC GCC CTG GCC TTT GAC TAC CGA GCA GGC ACC TCC CCG    7191
 Lys Asn Val Ile Ala Leu Ala Phe Asp Tyr Arg Ala Gly Thr Ser Pro
2235                2240                2245                2250
```

FIG.12A-13

```
GGG ACC CCT AAC CGC ATC TTC TTC AGT GAC ATC CAC TTT GGG AAC ATC      7239
Gly Thr Pro Asn Arg Ile Phe Phe Ser Asp Ile His Phe Gly Asn Ile
            2255                2260                2265

CAG CAG ATC AAT GAC GAT GGC TCG GGC AGG ACC ACC ATC GTG GAA AAT      7287
Gln Gln Ile Asn Asp Asp Gly Ser Gly Arg Thr Thr Ile Val Glu Asn
        2270                2275                2280

GTG GGC TCT GTG GAA GGC CTG GCC TAT CAC CGT GGC TGG GAC ACA CTG      7335
Val Gly Ser Val Glu Gly Leu Ala Tyr His Arg Gly Trp Asp Thr Leu
    2285                2290                2295

TAC TGG ACA AGC TAC ACC ACA TCC ACC ATC ACC CGC CAC ACC GTG GAC      7383
Tyr Trp Thr Ser Tyr Thr Thr Ser Thr Ile Thr Arg His Thr Val Asp
2300                2305                2310

CAG ACT CGC CCA GGG GCC TTC GAG AGG GAG ACA GTC ATC ACC ATG TCC      7431
Gln Thr Arg Pro Gly Ala Phe Glu Arg Glu Thr Val Ile Thr Met Ser
2315                2320                2325                2330

GGA GAC GAC CAC CCG AGA GCC TTT GTG CTG GAT GAG TGC CAG AAC CTG      7479
Gly Asp Asp His Pro Arg Ala Phe Val Leu Asp Glu Cys Gln Asn Leu
            2335                2340                2345

ATG TTC TGG ACC AAT TGG AAC GAG CTC CAT CCA AGC ATC ATG CGG GCA      7527
Met Phe Trp Thr Asn Trp Asn Glu Leu His Pro Ser Ile Met Arg Ala
        2350                2355                2360

GCC CTA TCC GGA GCC AAC GTC CTG ACC CTC ATT GAG AAG GAC ATC CGC      7575
Ala Leu Ser Gly Ala Asn Val Leu Thr Leu Ile Glu Lys Asp Ile Arg
    2365                2370                2375

ACG CCC AAT GGG TTG GCC ATC GAC CAC CGG GCG GAG AAG CTG TAC TTC      7623
Thr Pro Asn Gly Leu Ala Ile Asp His Arg Ala Glu Lys Leu Tyr Phe
2380                2385                2390

TCG GAT GCC ACC TTG GAC AAG ATC GAG CGC TGC GAG TAC GAC GGC TCC      7671
Ser Asp Ala Thr Leu Asp Lys Ile Glu Arg Cys Glu Tyr Asp Gly Ser
2395                2400                2405                2410

CAC CGC TAT GTG ATC CTA AAG TCG GAG CCC GTC CAC CCC TTT GGG TTG      7719
His Arg Tyr Val Ile Leu Lys Ser Glu Pro Val His Pro Phe Gly Leu
            2415                2420                2425
```

FIG.12A-14

```
GCG GTG TAC GGA GAG CAC ATT TTC TGG ACT GAC TGG GTG CGG CGG GCT   7767
Ala Val Tyr Gly Glu His Ile Phe Trp Thr Asp Trp Val Arg Arg Ala
          2430                2435                2440

GTG CAG CGA GCC AAC AAG TAT GTG GGC AGC GAC ATG AAG CTG CTT CGG   7815
Val Gln Arg Ala Asn Lys Tyr Val Gly Ser Asp Met Lys Leu Leu Arg
       2445                2450                2455

GTG GAC ATT CCC CAG CAA CCC ATG GGC ATC ATC GCC GTG GCC AAT GAC   7863
Val Asp Ile Pro Gln Gln Pro Met Gly Ile Ile Ala Val Ala Asn Asp
    2460                2465                2470

ACC AAC AGC TGT GAA CTC TCC CCC TGC CGT ATC AAC AAT GGA GGC TGC   7911
Thr Asn Ser Cys Glu Leu Ser Pro Cys Arg Ile Asn Asn Gly Gly Cys
2475                2480                2485                2490

CAG GAT CTG TGT CTG CTC ACC CAC CAA GGC CAC GTC AAC TGT TCC TGT   7959
Gln Asp Leu Cys Leu Leu Thr His Gln Gly His Val Asn Cys Ser Cys
                2495                2500                2505

CGA GGG GGC CGG ATC CTC CAG GAG GAC TTC ACC TGC CGG GCT GTG AAC   8007
Arg Gly Gly Arg Ile Leu Gln Glu Asp Phe Thr Cys Arg Ala Val Asn
          2510                2515                2520

TCC TCT TGT CGG GCA CAA GAT GAG TTT GAG TGT GCC AAT GGG GAA TGT   8055
Ser Ser Cys Arg Ala Gln Asp Glu Phe Glu Cys Ala Asn Gly Glu Cys
       2525                2530                2535

ATC AGC TTC AGC CTC ACC TGT GAT GGC GTC TCC CAC TGC AAG GAC AAG   8103
Ile Ser Phe Ser Leu Thr Cys Asp Gly Val Ser His Cys Lys Asp Lys
    2540                2545                2550

TCC GAT GAG AAG CCC TCC TAC TGC AAC TCA CGC CGC TGC AAG AAG ACT   8151
Ser Asp Glu Lys Pro Ser Tyr Cys Asn Ser Arg Arg Cys Lys Lys Thr
2555                2560                2565                2570

TTC CGC CAG TGT AAC AAT GGC CGC TGT GTA TCC AAC ATG CTG TGG TGC   8199
Phe Arg Gln Cys Asn Asn Gly Arg Cys Val Ser Asn Met Leu Trp Cys
                2575                2580                2585

AAT GGG GTG GAT TAC TGT GGG GAT GGC TCT GAT GAG ATA CCT TGC AAC   8247
Asn Gly Val Asp Tyr Cys Gly Asp Gly Ser Asp Glu Ile Pro Cys Asn
          2590                2595                2600
```

FIG.12A-15

```
AAG ACT GCC TGT GGT GTG GGT GAG TTC CGC TGC CGG GAT GGG TCC TGC      8295
Lys Thr Ala Cys Gly Val Gly Glu Phe Arg Cys Arg Asp Gly Ser Cys
       2605                2610                2615

ATC GGG AAC TCC AGT CGC TGC AAC CAG TTT GTG GAT TGT GAG GAT GCC      8343
Ile Gly Asn Ser Ser Arg Cys Asn Gln Phe Val Asp Cys Glu Asp Ala
   2620                2625                2630

TCG GAT GAG ATG AAT TGC AGT GCC ACA GAC TGC AGC AGC TAT TTC CGC      8391
Ser Asp Glu Met Asn Cys Ser Ala Thr Asp Cys Ser Ser Tyr Phe Arg
2635                2640                2645                2650

CTG GGC GTG AAA GGT GTC CTC TTC CAG CCG TGC GAG CGG ACA TCC CTG      8439
Leu Gly Val Lys Gly Val Leu Phe Gln Pro Cys Glu Arg Thr Ser Leu
                2655                2660                2665

TGC TAC GCA CCT AGC TGG GTG TGT GAT GGC GCC AAC GAC TGT GGA GAC      8487
Cys Tyr Ala Pro Ser Trp Val Cys Asp Gly Ala Asn Asp Cys Gly Asp
           2670                2675                2680

TAC AGC GAT GAA CGT GAC TGT CCA GGT GTG AAG CGC CCT AGG TGC CCG      8535
Tyr Ser Asp Glu Arg Asp Cys Pro Gly Val Lys Arg Pro Arg Cys Pro
       2685                2690                2695

CTC AAT TAC TTT GCC TGC CCC AGC GGG CGC TGT ATC CCC ATG AGC TGG      8583
Leu Asn Tyr Phe Ala Cys Pro Ser Gly Arg Cys Ile Pro Met Ser Trp
   2700                2705                2710

ACG TGT GAC AAG GAG GAT GAC TGT GAG AAC GGC GAG GAT GAG ACC CAC      8631
Thr Cys Asp Lys Glu Asp Asp Cys Glu Asn Gly Glu Asp Glu Thr His
2715                2720                2725                2730

TGC AAC AAG TTC TGC TCA GAG GCA CAG TTC GAG TGC CAG AAC CAC CGG      8679
Cys Asn Lys Phe Cys Ser Glu Ala Gln Phe Glu Cys Gln Asn His Arg
                2735                2740                2745

TGT ATC TCC AAG CAG TGG CTG TGT GAC GGT AGC GAT GAT TGC GGG GAT      8727
Cys Ile Ser Lys Gln Trp Leu Cys Asp Gly Ser Asp Asp Cys Gly Asp
           2750                2755                2760

GGC TCC GAT GAG GCA GCT CAC TGT GAA GGC AAG ACA TGT GGC CCC TCC      8775
Gly Ser Asp Glu Ala Ala His Cys Glu Gly Lys Thr Cys Gly Pro Ser
       2765                2770                2775
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FIG.12A-16

```
TCC TTC TCC TGT CCC GGC ACC CAC GTG TGT GTC CCT GAG CGC TGG CTC      8823
Ser Phe Ser Cys Pro Gly Thr His Val Cys Val Pro Glu Arg Trp Leu
  2780                2785                2790

TGT GAT GGC GAC AAG GAC TGT ACC GAT GGC GCG GAT GAG AGT GTC ACT      8871
Cys Asp Gly Asp Lys Asp Cys Thr Asp Gly Ala Asp Glu Ser Val Thr
2795                2800                2805                2810

GCT GGC TGC CTG TAC AAC AGC ACC TGT GAT GAC CGT GAG TTC ATG TGC      8919
Ala Gly Cys Leu Tyr Asn Ser Thr Cys Asp Asp Arg Glu Phe Met Cys
                2815                2820                2825

CAG AAC CGC TTG TGT ATT CCC AAG CAT TTC GTG TGC GAC CAT GAC CGT      8967
Gln Asn Arg Leu Cys Ile Pro Lys His Phe Val Cys Asp His Asp Arg
                2830                2835                2840

GAC TGT GCT GAT GGC TCT GAT GAA TCC CCT GAG TGT GAG TAC CCA ACC      9015
Asp Cys Ala Asp Gly Ser Asp Glu Ser Pro Glu Cys Glu Tyr Pro Thr
        2845                2850                2855

TGC GGG CCC AAT GAA TTC CGC TGT GCC AAT GGG CGT TGT CTG AGC TCC      9063
Cys Gly Pro Asn Glu Phe Arg Cys Ala Asn Gly Arg Cys Leu Ser Ser
  2860                2865                2870

CGT CAG TGG GAA TGT GAT GGG GAG AAT GAC TGT CAC GAC CAC AGC GAT      9111
Arg Gln Trp Glu Cys Asp Gly Glu Asn Asp Cys His Asp His Ser Asp
2875                2880                2885                2890

GAG GCT CCC AAG AAC CCA CAC TGC ACC AGC CCA GAG CAC AAA TGC AAT      9159
Glu Ala Pro Lys Asn Pro His Cys Thr Ser Pro Glu His Lys Cys Asn
                2895                2900                2905

GCC TCA TCA CAG TTC CTG TGC AGC AGC GGG CGC TGC GTG GCT GAG GCG      9207
Ala Ser Ser Gln Phe Leu Cys Ser Ser Gly Arg Cys Val Ala Glu Ala
                2910                2915                2920

TTG CTC TGC AAC GGC CAG GAC GAC TGT GGG GAC GGT TCA GAC GAA CGC      9255
Leu Leu Cys Asn Gly Gln Asp Asp Cys Gly Asp Gly Ser Asp Glu Arg
        2925                2930                2935

GGG TGC CAT GTC AAC GAG TGT CTC AGC CGC AAG CTC AGT GGC TGC AGT      9303
Gly Cys His Val Asn Glu Cys Leu Ser Arg Lys Leu Ser Gly Cys Ser
  2940                2945                2950
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FIG.12A-17

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CAG GAC TGC GAG GAC CTC AAG ATA GGC TTT AAG TGC CGC TGT CGC CCG    9351
Gln Asp Cys Glu Asp Leu Lys Ile Gly Phe Lys Cys Arg Cys Arg Pro
2955                2960                2965                2970

GGC TTC CGG CTA AAG GAC GAT GGC AGG ACC TGT GCC GAC CTG GAT GAG    9399
Gly Phe Arg Leu Lys Asp Asp Gly Arg Thr Cys Ala Asp Leu Asp Glu
                2975                2980                2985

TGC AGC ACC ACC TTC CCC TGC AGC CAG CTC TGC ATC AAC ACC CAC GGA    9447
Cys Ser Thr Thr Phe Pro Cys Ser Gln Leu Cys Ile Asn Thr His Gly
           2990                2995                3000

AGT TAC AAG TGT CTG TGT GTG GAG GGC TAT GCA CCC CGT GGC GGT GAC    9495
Ser Tyr Lys Cys Leu Cys Val Glu Gly Tyr Ala Pro Arg Gly Gly Asp
      3005                3010                3015

CCC CAC AGC TGC AAA GCT GTG ACC GAT GAG GAG CCA TTT CTC ATC TTT    9543
Pro His Ser Cys Lys Ala Val Thr Asp Glu Glu Pro Phe Leu Ile Phe
   3020                3025                3030

GCC AAC CGG TAC TAC CTG CGG AAG CTC AAC CTG GAC GGC TCC AAC TAC    9591
Ala Asn Arg Tyr Tyr Leu Arg Lys Leu Asn Leu Asp Gly Ser Asn Tyr
3035                3040                3045                3050

ACA CTG CTT AAG CAG GGC CTG AAC AAT GCG GTC GCC TTG GCA TTT GAC    9639
Thr Leu Leu Lys Gln Gly Leu Asn Asn Ala Val Ala Leu Ala Phe Asp
                3055                3060                3065

TAC CGA GAG CAG ATG ATC TAC TGG ACG GGC GTG ACC ACC CAG GGC AGC    9687
Tyr Arg Glu Gln Met Ile Tyr Trp Thr Gly Val Thr Thr Gln Gly Ser
           3070                3075                3080

ATG ATT CGC AGG ATG CAC CTC AAC GGC AGC AAC GTG CAG GTT CTG CAC    9735
Met Ile Arg Arg Met His Leu Asn Gly Ser Asn Val Gln Val Leu His
      3085                3090                3095

CGG ACG GGC CTT AGT AAC CCA GAT GGG CTC GCT GTG GAC TGG GTG GGT    9783
Arg Thr Gly Leu Ser Asn Pro Asp Gly Leu Ala Val Asp Trp Val Gly
   3100                3105                3110

GGC AAC CTG TAC TGG TGT GAC AAG GGC AGA GAT ACC ATT GAG GTG TCC    9831
Gly Asn Leu Tyr Trp Cys Asp Lys Gly Arg Asp Thr Ile Glu Val Ser
3115                3120                3125                3130
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FIG.12A-18

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AAG CTT AAC GGG GCC TAT CGG ACA GTG CTG GTC AGC TCT GGC CTC CGG    9879
Lys Leu Asn Gly Ala Tyr Arg Thr Val Leu Val Ser Ser Gly Leu Arg
              3135                3140                3145

GAG CCC AGA GCT CTG GTA GTG GAT GTA CAG AAT GGG TAC CTG TAC TGG    9927
Glu Pro Arg Ala Leu Val Val Asp Val Gln Asn Gly Tyr Leu Tyr Trp
          3150                3155                3160

ACA GAC TGG GGT GAC CAC TCA CTG ATC GGC CGG ATT GGC ATG GAT GGA    9975
Thr Asp Trp Gly Asp His Ser Leu Ile Gly Arg Ile Gly Met Asp Gly
      3165                3170                3175

TCT GGC CGC AGC ATC ATC GTG GAC ACT AAG ATC ACA TGG CCC AAT GGC   10023
Ser Gly Arg Ser Ile Ile Val Asp Thr Lys Ile Thr Trp Pro Asn Gly
  3180                3185                3190

CTG ACC GTG GAC TAC GTC ACG GAA CGC ATC TAC TGG GCT GAC GCC CGT   10071
Leu Thr Val Asp Tyr Val Thr Glu Arg Ile Tyr Trp Ala Asp Ala Arg
3195                3200                3205                3210

GAG GAC TAC ATC GAG TTC GCC AGC CTG GAT GGC TCC AAC CGT CAC GTT   10119
Glu Asp Tyr Ile Glu Phe Ala Ser Leu Asp Gly Ser Asn Arg His Val
              3215                3220                3225

GTG CTG AGC CAA GAC ATC CCA CAC ATC TTT GCG CTG ACC CTA TTT GAA   10167
Val Leu Ser Gln Asp Ile Pro His Ile Phe Ala Leu Thr Leu Phe Glu
          3230                3235                3240

GAC TAC GTC TAC TGG ACA GAC TGG GAA ACG AAG TCC ATC AAC CGG GCC   10215
Asp Tyr Val Tyr Trp Thr Asp Trp Glu Thr Lys Ser Ile Asn Arg Ala
      3245                3250                3255

CAC AAG ACC ACG GGT GCC AAC AAA ACA CTC CTC ATC AGC ACC CTG CAC   10263
His Lys Thr Thr Gly Ala Asn Lys Thr Leu Leu Ile Ser Thr Leu His
  3260                3265                3270

CGG CCC ATG GAC TTA CAT GTA TTC CAC GCC CTG CGC CAG CCA GAT GTG   10311
Arg Pro Met Asp Leu His Val Phe His Ala Leu Arg Gln Pro Asp Val
3275                3280                3285                3290

CCC AAT CAC CCC TGC AAA GTC AAC AAT GGT GGC TGC AGC AAC CTG TGC   10359
Pro Asn His Pro Cys Lys Val Asn Asn Gly Gly Cys Ser Asn Leu Cys
              3295                3300                3305
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FIG.12A-19

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CTG CTG TCC CCT GGG GGT GGT CAC AAG TGC GCC TGC CCC ACC AAC TTC   10407
Leu Leu Ser Pro Gly Gly Gly His Lys Cys Ala Cys Pro Thr Asn Phe
          3310                3315                3320

TAT CTG GGT GGC GAT GGC CGT ACC TGT GTG TCC AAC TGC ACA GCA AGC   10455
Tyr Leu Gly Gly Asp Gly Arg Thr Cys Val Ser Asn Cys Thr Ala Ser
      3325                3330                3335

CAG TTT GTG TGC AAA AAT GAC AAG TGC ATC CCC TTC TGG TGG AAG TGT   10503
Gln Phe Val Cys Lys Asn Asp Lys Cys Ile Pro Phe Trp Trp Lys Cys
  3340                3345                3350

GAC ACG GAG GAC GAC TGT GGG GAT CAC TCA GAC GAG CCT CCA GAC TGT   10551
Asp Thr Glu Asp Asp Cys Gly Asp His Ser Asp Glu Pro Pro Asp Cys
3355                3360                3365                3370

CCC GAG TTC AAG TGC CGC CCA GGC CAG TTC CAG TGC TCC ACC GGC ATC   10599
Pro Glu Phe Lys Cys Arg Pro Gly Gln Phe Gln Cys Ser Thr Gly Ile
                3375                3380                3385

TGC ACC AAC CCT GCC TTC ATC TGT GAT GGG GAC AAT GAC TGC CAA GAC   10647
Cys Thr Asn Pro Ala Phe Ile Cys Asp Gly Asp Asn Asp Cys Gln Asp
          3390                3395                3400

AAT AGT GAC GAG GCC AAT TGC GAC ATT CAC GTC TGC TTG CCC AGC CAA   10695
Asn Ser Asp Glu Ala Asn Cys Asp Ile His Val Cys Leu Pro Ser Gln
      3405                3410                3415

TTC AAG TGC ACC AAC ACC AAC CGC TGC ATT CCT GGC ATC TTC CGT TGC   10743
Phe Lys Cys Thr Asn Thr Asn Arg Cys Ile Pro Gly Ile Phe Arg Cys
  3420                3425                3430

AAT GGG CAG GAC AAC TGC GGG GAC GGC GAG GAT GAG CGG GAT TGC CCT   10791
Asn Gly Gln Asp Asn Cys Gly Asp Gly Glu Asp Glu Arg Asp Cys Pro
3435                3440                3445                3450

GAG GTG ACC TGC GCC CCC AAC CAG TTC CAG TGC TCC ATC ACC AAG CGC   10839
Glu Val Thr Cys Ala Pro Asn Gln Phe Gln Cys Ser Ile Thr Lys Arg
                3455                3460                3465

TGC ATC CCT CGC GTC TGG GTC TGT GAC AGG GAT AAT CAC TGT GTG GAC   10887
Cys Ile Pro Arg Val Trp Val Cys Asp Arg Asp Asn His Cys Val Asp
          3470                3475                3480
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FIG.12A-20

GGC AGT GAT GAG CCT GCC AAC TGT ACC CAA ATG ACC TGT GGA GTG GAT 10935
Gly Ser Asp Glu Pro Ala Asn Cys Thr Gln Met Thr Cys Gly Val Asp
3485 3490 3495

GAG TTC CGC TGC AAG GAT TCT GGC CGC TGC ATC CCC GCG CGC TGG AAG 10983
Glu Phe Arg Cys Lys Asp Ser Gly Arg Cys Ile Pro Ala Arg Trp Lys
3500 3505 3510

TGT GAC GGA GAA GAT GAC TGT GGG GAT GGT TCA GAT GAG CCC AAG GAA 11031
Cys Asp Gly Glu Asp Asp Cys Gly Asp Gly Ser Asp Glu Pro Lys Glu
3515 3520 3525 3530

GAG TGT GAT GAG CGC ACC TGT GAG CCA TAC CAG TTC CGC TGC AAA AAC 11079
Glu Cys Asp Glu Arg Thr Cys Glu Pro Tyr Gln Phe Arg Cys Lys Asn
3535 3540 3545

AAC CGC TGT GTC CCA GGC CGT TGG CAA TGT GAC TAC GAC AAC GAC TGC 11127
Asn Arg Cys Val Pro Gly Arg Trp Gln Cys Asp Tyr Asp Asn Asp Cys
3550 3555 3560

GGA GAT AAC TCG GAC GAG GAG AGC TGC ACA CCT CGG CCC TGC TCT GAG 11175
Gly Asp Asn Ser Asp Glu Glu Ser Cys Thr Pro Arg Pro Cys Ser Glu
3565 3570 3575

AGT GAG TTT TTC TGT GCC AAT GGC CGC TGC ATC GCT GGG CGC TGG AAG 11223
Ser Glu Phe Phe Cys Ala Asn Gly Arg Cys Ile Ala Gly Arg Trp Lys
3580 3585 3590

TGT GAT GGG GAC CAT GAC TGT GCC GAC GGC TCA GAC GAG AAA GAC TGC 11271
Cys Asp Gly Asp His Asp Cys Ala Asp Gly Ser Asp Glu Lys Asp Cys
3595 3600 3605 3610

ACC CCC CGC TGT GAT ATG GAC CAG TTC CAG TGC AAG AGT GGC CAC TGC 11319
Thr Pro Arg Cys Asp Met Asp Gln Phe Gln Cys Lys Ser Gly His Cys
3615 3620 3625

ATC CCC CTG CGC TGG CCG TGT GAC GCG GAT GCT GAC TGT ATG GAC GGC 11367
Ile Pro Leu Arg Trp Pro Cys Asp Ala Asp Ala Asp Cys Met Asp Gly
3630 3635 3640

AGT GAC GAG GAA GCC TGT GGC ACT GGG GTG AGG ACC TGC CCA TTG GAT 11415
Ser Asp Glu Glu Ala Cys Gly Thr Gly Val Arg Thr Cys Pro Leu Asp
3645 3650 3655

FIG.12A-21

GAG TTT CAA TGT AAC AAC ACC TTG TGC AAG CCG CTG GCC TGG AAG TGT 11463
Glu Phe Gln Cys Asn Asn Thr Leu Cys Lys Pro Leu Ala Trp Lys Cys
3660 3665 3670

GAT GGA GAG GAC GAC TGT GGG GAC AAC TCA GAT GAG AAC CCC GAG GAA 11511
Asp Gly Glu Asp Asp Cys Gly Asp Asn Ser Asp Glu Asn Pro Glu Glu
3675 3680 3685 3690

TGC GCC CGG TTC ATC TGC CCT CCC AAC CGG CCT TTC CGC TGC AAG AAT 11559
Cys Ala Arg Phe Ile Cys Pro Pro Asn Arg Pro Phe Arg Cys Lys Asn
3695 3700 3705

GAC CGA GTC TGC CTG TGG ATT GGG CGC CAG TGT GAT GGC GTG GAC AAC 11607
Asp Arg Val Cys Leu Trp Ile Gly Arg Gln Cys Asp Gly Val Asp Asn
3710 3715 3720

TGT GGA GAT GGG ACT GAC GAG GAG GAC TGT GAG CCC CCC ACG GCC CAG 11655
Cys Gly Asp Gly Thr Asp Glu Glu Asp Cys Glu Pro Pro Thr Ala Gln
3725 3730 3735

AAC CCC CAC TGC AAA GAC AAG AAG GAG TTC CTG TGC CGA AAC CAG CGC 11703
Asn Pro His Cys Lys Asp Lys Lys Glu Phe Leu Cys Arg Asn Gln Arg
3740 3745 3750

TGT CTA TCA TCC TCC CTG CGC TGT AAC ATG TTC GAT GAC TGC GGC GAT 11751
Cys Leu Ser Ser Ser Leu Arg Cys Asn Met Phe Asp Asp Cys Gly Asp
3755 3760 3765 3770

GGC TCC GAT GAA GAA GAT TGC AGC ATC GAC CCC AAG CTG ACC AGC TGT 11799
Gly Ser Asp Glu Glu Asp Cys Ser Ile Asp Pro Lys Leu Thr Ser Cys
3775 3780 3785

GCC ACC AAT GCC AGC ATG TGT GGG GAC GAA GCT CGT TGT GTG CGC ACT 11847
Ala Thr Asn Ala Ser Met Cys Gly Asp Glu Ala Arg Cys Val Arg Thr
3790 3795 3800

GAG AAA GCT GCC TAC TGT GCC TGC CGC TCG GGC TTC CAT ACT GTG CCG 11895
Glu Lys Ala Ala Tyr Cys Ala Cys Arg Ser Gly Phe His Thr Val Pro
3805 3810 3815

GGC CAG CCC GGA TGC CAG GAC ATC AAC GAG TGC CTG CGC TTT GGT ACC 11943
Gly Gln Pro Gly Cys Gln Asp Ile Asn Glu Cys Leu Arg Phe Gly Thr
3820 3825 3830

FIG.12A-22

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TGC TCT CAG CTC TGG AAC AAA CCC AAG GGA GGC CAC CTC TGC AGC TGT   11991
Cys Ser Gln Leu Trp Asn Lys Pro Lys Gly Gly His Leu Cys Ser Cys
3835                 3840                 3845                 3850

GCC CGC AAC TTC ATG AAG ACA CAC AAC ACC TGC AAA GCT GAA GGC TCC   12039
Ala Arg Asn Phe Met Lys Thr His Asn Thr Cys Lys Ala Glu Gly Ser
                3855                 3860                 3865

GAG TAC CAG GTG CTA TAC ATC GCG GAT GAC AAC GAG ATC CGC AGC TTG   12087
Glu Tyr Gln Val Leu Tyr Ile Ala Asp Asp Asn Glu Ile Arg Ser Leu
          3870                 3875                 3880

TTC CCG GGC CAC CCC CAC TCA GCC TAC GAG CAG ACA TTC CAG GGC GAT   12135
Phe Pro Gly His Pro His Ser Ala Tyr Glu Gln Thr Phe Gln Gly Asp
     3885                 3890                 3895

GAG AGT GTC CGC ATA GAT GCC ATG GAT GTC CAT GTC AAG GCC GGC CGT   12183
Glu Ser Val Arg Ile Asp Ala Met Asp Val His Val Lys Ala Gly Arg
3900                 3905                 3910

GTC TAC TGG ACT AAC TGG CAC ACG GGC ACA ATC TCC TAC AGG AGC CTG   12231
Val Tyr Trp Thr Asn Trp His Thr Gly Thr Ile Ser Tyr Arg Ser Leu
3915                 3920                 3925                 3930

CCC CCT GCC GCC CCT CCT ACC ACT TCC AAC CGC CAC CGG AGG CAG ATC   12279
Pro Pro Ala Ala Pro Pro Thr Thr Ser Asn Arg His Arg Arg Gln Ile
                3935                 3940                 3945

GAC CGG GGT GTC ACC CAC CTC AAT ATT TCA GGG CTG AAG ATG CCG AGG   12327
Asp Arg Gly Val Thr His Leu Asn Ile Ser Gly Leu Lys Met Pro Arg
          3950                 3955                 3960

GGT ATC GCT ATC GAC TGG GTG GCC GGG AAT GTG TAC TGG ACC GAT TCC   12375
Gly Ile Ala Ile Asp Trp Val Ala Gly Asn Val Tyr Trp Thr Asp Ser
     3965                 3970                 3975

GGC CGA GAC GTG ATT GAG GTG GCG CAA ATG AAG GGC GAG AAC CGC AAG   12423
Gly Arg Asp Val Ile Glu Val Ala Gln Met Lys Gly Glu Asn Arg Lys
3980                 3985                 3990

ACG CTC ATC TCG GGC ATG ATT GAT GAG CCC CAT GCC ATC GTG GTG GAC   12471
Thr Leu Ile Ser Gly Met Ile Asp Glu Pro His Ala Ile Val Val Asp
3995                 4000                 4005                 4010
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FIG.12A-23

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CCT CTG AGG GGC ACC ATG TAC TGG TCA GAC TGG GGG AAC CAC CCC AAG   12519
Pro Leu Arg Gly Thr Met Tyr Trp Ser Asp Trp Gly Asn His Pro Lys
                4015                4020                4025

ATT GAA ACA GCA GCG ATG GAT GGC ACC CTT CGG GAG ACT CTC GTG CAA   12567
Ile Glu Thr Ala Ala Met Asp Gly Thr Leu Arg Glu Thr Leu Val Gln
            4030                4035                4040

GAC AAC ATT CAG TGG CCT ACA GGG CTG GCT GTG GAC TAT CAC AAT GAA   12615
Asp Asn Ile Gln Trp Pro Thr Gly Leu Ala Val Asp Tyr His Asn Glu
        4045                4050                4055

CGG CTC TAC TGG GCA GAT GCC AAG CTT TCG GTC ATC GGC AGC ATC CGG   12663
Arg Leu Tyr Trp Ala Asp Ala Lys Leu Ser Val Ile Gly Ser Ile Arg
    4060                4065                4070

CTC AAC GGC ACT GAC CCC ATT GTG GCT GCT GAC AGC AAA CGA GGC CTA   12711
Leu Asn Gly Thr Asp Pro Ile Val Ala Ala Asp Ser Lys Arg Gly Leu
4075                4080                4085                4090

AGT CAC CCC TTC AGC ATC GAT GTG TTT GAA GAC TAC ATC TAC GGA GTC   12759
Ser His Pro Phe Ser Ile Asp Val Phe Glu Asp Tyr Ile Tyr Gly Val
                4095                4100                4105

ACT TAC ATC AAT AAT CGT GTC TTC AAG ATC CAC AAG TTT GGA CAC AGC   12807
Thr Tyr Ile Asn Asn Arg Val Phe Lys Ile His Lys Phe Gly His Ser
            4110                4115                4120

CCC TTG TAC AAC CTA ACT GGG GGC CTG AGC CAT GCC TCT GAT GTA GTC   12855
Pro Leu Tyr Asn Leu Thr Gly Gly Leu Ser His Ala Ser Asp Val Val
        4125                4130                4135

CTT TAC CAT CAA CAC AAG CAG CCT GAA GTG ACC AAC CCC TGT GAC CGC   12903
Leu Tyr His Gln His Lys Gln Pro Glu Val Thr Asn Pro Cys Asp Arg
    4140                4145                4150

AAG AAA TGC GAA TGG CTG TGT CTG CTG AGC CCC AGC GGG CCT GTC TGC   12951
Lys Lys Cys Glu Trp Leu Cys Leu Leu Ser Pro Ser Gly Pro Val Cys
4155                4160                4165                4170

ACC TGT CCC AAT GGA AAG AGG CTG GAT AAT GGC ACC TGT GTG CCT GTG   12999
Thr Cys Pro Asn Gly Lys Arg Leu Asp Asn Gly Thr Cys Val Pro Val
                4175                4180                4185
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FIG.12A-24

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CCC TCT CCA ACA CCC CCT CCA GAT GCC CCT AGG CCT GGA ACC TGC ACT   13047
Pro Ser Pro Thr Pro Pro Pro Asp Ala Pro Arg Pro Gly Thr Cys Thr
        4190                4195                4200

CTG CAG TGC TTC AAT GGT GGT AGT TGT TTC CTC AAC GCT CGG AGG CAG   13095
Leu Gln Cys Phe Asn Gly Gly Ser Cys Phe Leu Asn Ala Arg Arg Gln
    4205                4210                4215

CCC AAG TGC CGT TGC CAG CCC CGT TAC ACA GGC GAT AAG TGT GAG CTG   13143
Pro Lys Cys Arg Cys Gln Pro Arg Tyr Thr Gly Asp Lys Cys Glu Leu
4220                4225                4230

GAT CAG TGC TGG GAA TAC TGT CAC AAC GGA GGC ACC TGT GCG GCT TCC   13191
Asp Gln Cys Trp Glu Tyr Cys His Asn Gly Gly Thr Cys Ala Ala Ser
4235                4240                4245                4250

CCA TCT GGC ATG CCC ACG TGC CGC TGT CCC ACT GGC TTC ACG GGC CCC   13239
Pro Ser Gly Met Pro Thr Cys Arg Cys Pro Thr Gly Phe Thr Gly Pro
                4255                4260                4265

AAA TGC ACC GCA CAG GTG TGT GCA GGC TAC TGC TCT AAC AAC AGC ACC   13287
Lys Cys Thr Ala Gln Val Cys Ala Gly Tyr Cys Ser Asn Asn Ser Thr
        4270                4275                4280

TGC ACC GTC AAC CAG GGC AAC CAG CCC CAG TGC CGA TGT CTA CCT GGC   13335
Cys Thr Val Asn Gln Gly Asn Gln Pro Gln Cys Arg Cys Leu Pro Gly
    4285                4290                4295

TTC CTG GGC GAC CGT TGC CAG TAC CGG CAG TGC TCT GGC TTC TGT GAG   13383
Phe Leu Gly Asp Arg Cys Gln Tyr Arg Gln Cys Ser Gly Phe Cys Glu
4300                4305                4310

AAC TTT GGC ACC TGT CAG ATG GCT GCT GAT GGC TCC CGA CAA TGT CGC   13431
Asn Phe Gly Thr Cys Gln Met Ala Ala Asp Gly Ser Arg Gln Cys Arg
4315                4320                4325                4330

TGC ACC GTC TAC TTT GAG GGA CCA AGG TGT GAG GTG AAC AAG TGT AGT   13479
Cys Thr Val Tyr Phe Glu Gly Pro Arg Cys Glu Val Asn Lys Cys Ser
                4335                4340                4345

CGC TGT CTC CAA GGC GCC TGT GTG GTC AAT AAG CAG ACC GGA GAT GTC   13527
Arg Cys Leu Gln Gly Ala Cys Val Val Asn Lys Gln Thr Gly Asp Val
        4350                4355                4360
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FIG.12A-25

ACA TGC AAC TGC ACT GAT GGC CGG GTA GCC CCC AGT TGT CTC ACC TGC 13575
Thr Cys Asn Cys Thr Asp Gly Arg Val Ala Pro Ser Cys Leu Thr Cys
4365 4370 4375

ATC GAT CAC TGT AGC AAT GGT GGC TCC TGC ACC ATG AAC AGC AAG ATG 13623
Ile Asp His Cys Ser Asn Gly Gly Ser Cys Thr Met Asn Ser Lys Met
4380 4385 4390

ATG CCT GAG TGC CAG TGC CCG CCC CAT ATG ACA GGA CCC CGG TGC CAG 13671
Met Pro Glu Cys Gln Cys Pro Pro His Met Thr Gly Pro Arg Cys Gln
4395 4400 4405 4410

GAG CAG GTT GTT AGT CAG CAA CAG CCT GGG CAT ATG GCC TCC ATC CTG 13719
Glu Gln Val Val Ser Gln Gln Gln Pro Gly His Met Ala Ser Ile Leu
4415 4420 4425

ATC CCT CTG CTG CTG CTT CTC CTG CTG CTT CTG GTG GCT GGC GTG GTG 13767
Ile Pro Leu Leu Leu Leu Leu Leu Leu Leu Leu Val Ala Gly Val Val
4430 4435 4440

TTC TGG TAT AAG CGG CGA GTC CGA GGG GCT AAG GGC TTC CAG CAC CAG 13815
Phe Trp Tyr Lys Arg Arg Val Arg Gly Ala Lys Gly Phe Gln His Gln
4445 4450 4455

CGG ATG ACC AAT GGG GCC ATG AAT GTG GAA ATT GGA AAC CCT ACC TAC 13863
Arg Met Thr Asn Gly Ala Met Asn Val Glu Ile Gly Asn Pro Thr Tyr
4460 4465 4470

AAG ATG TAT GAA GGT GGA GAG CCC GAT GAT GTC GGG GGC CTA CTG GAT 13911
Lys Met Tyr Glu Gly Gly Glu Pro Asp Asp Val Gly Gly Leu Leu Asp
4475 4480 4485 4490

GCT GAT TTT GCC CTT GAC CCT GAC AAG CCT ACC AAC TTC ACC AAC CCA 13959
Ala Asp Phe Ala Leu Asp Pro Asp Lys Pro Thr Asn Phe Thr Asn Pro
4495 4500 4505

GTG TAT GCC ACG CTC TAC ATG GGG GGC CAC GGC AGC CGC CAT TCC CTG 14007
Val Tyr Ala Thr Leu Tyr Met Gly Gly His Gly Ser Arg His Ser Leu
4510 4515 4520

GCC AGC ACG GAC GAG AAG CGA GAA CTG CTG GGC CGG GGA CCT GAA GAC 14055
Ala Ser Thr Asp Glu Lys Arg Glu Leu Leu Gly Arg Gly Pro Glu Asp
4525 4530 4535

FIG.12A-26

GAG ATA GGA GAT CCC TTG GCA TAGGGCCCTG CCCCGACGGA TGTCCCCAGA AAGC 14110
CCCCTGCCAC ATGAGTCTTT CAATGAACCC CCTCCCCAGC CGGCCCTTCT CCGGCCCTGC 14170
Glu Ile Gly Asp Pro Leu Ala
4540 4545

CGGGTGTACA AATGTAAAAA TGAAGGAATT ACTTTTTATA TGTGAGCGAG CAAGCGAGCA 14230
AGCACAGTAT TATCTCTTTG CATTTCCTTC CTGCCTGCTC CTCAGTATCC CCCCCATGCT 14290
GCCTTGAGGG GGCGGGGAGG GCTTTGTGGC TCAAAGGTAT GAAGGAGTCC ACATGTTCCC 14350
TACCGAGCAT ACCCCTGGAA GCCTGGCGGC ACGGCCTCCC CACCACGCCT GTGCAAGACA 14410
CTCAACGGGG CTCCGTGTCC CAGCTTTCCT TTCCTTGGCT CTCTGGGGTT AGTTCAGGGG 14470
AGGTGGAGTC CTCTGCTGAC CCTGTCTGGA AGATTTGGCT CTAGCTGAGG AAGGAGTCTT 14530
TTAGTTGAGG GAAGTCACCC CAAACCCCAG CTCCCACTTT CAGGGGCACC TCTCAGATGG 14590
CCATGCTCAG TATCCCTTCC AGACAGGCCC TCCCCTCTCT AGCGCCCCCT CTGTGGCTCC 14650
TAGGGCTGAA CACATTCTTT GGTAACTGTC CCCCAAGCCT CCCATCCCCC TGAGGGCCAG 14710
GAAGAGTCGG GGCACACCAA GGAAGGGCAA GCGGGCAGCC CCATTTTGGG GACGTGAACG 14770
TTTTAATAAT TTTTGCTGAA TTCCTTTACA ACTAAATAAC ACAGATATTG TTATAAATAA 14830
AATTGTAAAA AAAAAAAAA

FIG.12A-27

Met Leu Thr Pro Pro Leu Leu Leu Leu Val Pro Leu Leu Ser Ala Leu
1 5 10 15
Val Ser Gly Ala Thr Met Asp Ala Pro Lys Thr Cys Ser Pro Lys Gln
20 25 30
Phe Ala Cys Arg Asp Gln Ile Thr Cys Ile Ser Lys Gly Trp Arg Cys
35 40 45
Asp Gly Glu Arg Asp Cys Pro Asp Gly Ser Asp Glu Ala Pro Glu Ile
50 55 60
Cys Pro Gln Ser Lys Ala Gln Arg Cys Pro Pro Asn Glu His Ser Cys
65 70 75 80
Leu Gly Thr Glu Leu Cys Val Pro Met Ser Arg Leu Cys Asn Gly Ile
85 90 95
Gln Asp Cys Met Asp Gly Ser Asp Glu Gly Ala His Cys Arg Glu Leu
100 105 110
Arg Ala Asn Cys Ser Arg Met Gly Cys Gln His His Cys Val Pro Thr
115 120 125
Pro Ser Gly Pro Thr Cys Tyr Cys Asn Ser Ser Phe Gln Leu Glu Ala
130 135 140
Asp Gly Lys Thr Cys Lys Asp Phe Asp Glu Cys Ser Val Tyr Gly Thr
145 150 155 160
Cys Ser Gln Leu Cys Thr Asn Thr Asp Gly Ser Phe Thr Cys Gly Cys
165 170 175
Val Glu Gly Tyr Leu Leu Gln Pro Asp Asn Arg Ser Cys Lys Ala Lys
180 185 190
Asn Glu Pro Val Asp Arg Pro Pro Val Leu Leu Ile Ala Asn Ser Gln
195 200 205
Asn Ile Leu Ala Thr Tyr Leu Ser Gly Ala Gln Val Ser Thr Ile Thr
210 215 220
Pro Thr Ser Thr Arg Gln Thr Thr Ala Met Asp Phe Ser Tyr Ala Asn
225 230 235 240
Glu Thr Val Cys Trp Val His Val Gly Asp Ser Ala Ala Gln Thr Gln
245 250 255
Leu Lys Cys Ala Arg Met Pro Gly Leu Lys Gly Phe Val Asp Glu His
260 265 270
Thr Ile Asn Ile Ser Leu Ser Leu His His Val Glu Gln Met Ala Ile
275 280 285
Asp Trp Leu Thr Gly Asn Phe Tyr Phe Val Asp Asp Ile Asp Asp Arg
290 295 300
Ile Phe Val Cys Asn Arg Asn Gly Asp Thr Cys Val Thr Leu Leu Asp
305 310 315 320
Leu Glu Leu Tyr Asn Pro Lys Gly Ile Ala Leu Asp Pro Ala Met Gly
325 330 335

FIG.12B-1

Lys Val Phe Phe Thr Asp Tyr Gly Gln Ile Pro Lys Val Glu Arg Cys
340 345 350
Asp Met Asp Gly Gln Asn Arg Thr Lys Leu Val Asp Ser Lys Ile Val
355 360 365
Phe Pro His Gly Ile Thr Leu Asp Leu Val Ser Arg Leu Val Tyr Trp
370 375 380
Ala Asp Ala Tyr Leu Asp Tyr Ile Glu Val Val Asp Tyr Glu Gly Lys
385 390 395 400
Gly Arg Gln Thr Ile Ile Gln Gly Ile Leu Ile Glu His Leu Tyr Gly
405 410 415
Leu Thr Val Phe Glu Asn Tyr Leu Tyr Ala Thr Asn Ser Asp Asn Ala
420 425 430
Asn Thr Gln Gln Lys Thr Ser Val Ile Arg Val Asn Arg Phe Asn Ser
435 440 445
Thr Glu Tyr Gln Val Val Thr Arg Val Asp Lys Gly Gly Ala Leu His
450 455 460
Ile Tyr His Gln Arg Arg Gln Pro Arg Val Arg Ser His Ala Cys Glu
465 470 475 480
Asn Asp Gln Tyr Gly Lys Pro Gly Gly Cys Ser Asp Ile Cys Leu Leu
485 490 495
Ala Asn Ser His Lys Ala Arg Thr Cys Arg Cys Arg Ser Gly Phe Ser
500 505 510
Leu Gly Ser Asp Gly Lys Ser Cys Lys Lys Pro Glu His Glu Leu Phe
515 520 525
Leu Val Tyr Gly Lys Gly Arg Pro Gly Ile Ile Arg Gly Met Asp Met
530 535 540
Gly Ala Lys Val Pro Asp Glu His Met Ile Pro Ile Glu Asn Leu Met
545 550 555 560
Asn Pro Arg Ala Leu Asp Phe His Ala Glu Thr Gly Phe Ile Tyr Phe
565 570 575
Ala Asp Thr Thr Ser Tyr Leu Ile Gly Arg Gln Lys Ile Asp Gly Thr
580 585 590
Glu Arg Glu Thr Ile Leu Lys Asp Gly Ile His Asn Val Glu Gly Val
595 600 605
Ala Val Asp Trp Met Gly Asp Asn Leu Tyr Trp Thr Asp Asp Gly Pro
610 615 620
Lys Lys Thr Ile Ser Val Ala Arg Leu Glu Lys Ala Ala Gln Thr Arg
625 630 635 640
Lys Thr Leu Ile Glu Gly Lys Met Thr His Pro Arg Ala Ile Val Val
645 650 655
Asp Pro Leu Asn Gly Trp Met Tyr Trp Thr Asp Trp Glu Glu Asp Pro
660 665 670

FIG.12B-2

Leu Ser Leu Asp Ile Pro Ala Gly Arg Leu Tyr Trp Val Asp Ala Phe
705 710 715 720
Tyr Asp Arg Ile Glu Thr Ile Leu Leu Asn Gly Thr Asp Arg Lys Ile
725 730 735
Val Tyr Glu Gly Pro Glu Leu Asn His Ala Phe Gly Leu Cys His His
740 745 750
Gly Asn Tyr Leu Phe Trp Thr Glu Tyr Arg Ser Gly Ser Val Tyr Arg
755 760 765
Leu Glu Arg Gly Val Ala Gly Ala Pro Pro Thr Val Thr Leu Leu Arg
770 775 780
Ser Glu Arg Pro Pro Ile Phe Glu Ile Arg Met Tyr Asp Ala His Glu
785 790 795 800
Gln Gln Val Gly Thr Asn Lys Cys Arg Val Asn Asn Gly Gly Cys Ser
805 810 815
Ser Leu Cys Leu Ala Thr Pro Gly Ser Arg Gln Cys Ala Cys Ala Glu
820 825 830
Asp Gln Val Leu Asp Thr Asp Gly Val Thr Cys Leu Ala Asn Pro Ser
835 840 845
Tyr Val Pro Pro Pro Gln Cys Gln Pro Gly Gln Phe Ala Cys Ala Asn
850 855 860
Asn Arg Cys Ile Gln Glu Arg Trp Lys Cys Asp Gly Asp Asn Asp Cys
865 870 875 880
Leu Asp Asn Ser Asp Glu Ala Pro Ala Leu Cys His Gln His Thr Cys
885 890 895
Pro Ser Asp Arg Phe Lys Cys Glu Asn Asn Arg Cys Ile Pro Asn Arg
900 905 910
Trp Leu Cys Asp Gly Asp Asn Asp Cys Gly Asn Ser Glu Asp Glu Ser
915 920 925
Asn Ala Thr Cys Ser Ala Arg Thr Cys Pro Pro Asn Gln Phe Ser Cys
930 935 940
Ala Ser Gly Arg Cys Ile Pro Ile Ser Trp Thr Cys Asp Leu Asp Asp
945 950 955 960
Asp Cys Gly Asp Arg Ser Asp Glu Ser Ala Ser Cys Ala Tyr Pro Thr
965 970 975
Cys Phe Pro Leu Thr Gln Phe Thr Cys Asn Asn Gly Arg Cys Ile Asn
980 985 990
Ile Asn Trp Arg Cys Asp Asn Asp Asn Asp Cys Gly Asp Asn Ser Asp
995 1000 1005
Glu Ala Gly Cys Ser His Ser Cys Ser Ser Thr Gln Phe Lys Cys Asn
1010 1015 1020
Ser Gly Arg Cys Ile Pro Glu His Trp Thr Cys Asp Gly Asp Asn Asp
025 1030 1035 1040

FIG.12B-3

Cys Gly Asp Tyr Ser Asp Glu Thr His Ala Asn Cys Thr Asn Gln Ala
1045 1050 1055
Thr Arg Pro Pro Gly Gly Cys His Ser Asp Glu Phe Gln Cys Pro Leu
1060 1065 1070
Asp Gly Leu Cys Ile Pro Leu Arg Trp Arg Cys Asp Gly Asp Thr Asp
1075 1080 1085
Cys Met Asp Ser Ser Asp Glu Lys Ser Cys Glu Gly Val Thr His Val
1090 1095 1100
Cys Asp Pro Asn Val Lys Phe Gly Cys Lys Asp Ser Ala Arg Cys Ile
105 1110 1115 1120
Ser Lys Ala Trp Val Cys Asp Gly Asp Ser Asp Cys Glu Asp Asn Ser
1125 1130 1135
Asp Glu Glu Asn Cys Glu Ala Leu Ala Cys Arg Pro Pro Ser His Pro
1140 1145 1150
Cys Ala Asn Asn Thr Ser Val Cys Leu Pro Pro Asp Lys Leu Cys Asp
1155 1160 1165
Gly Lys Asp Asp Cys Gly Asp Gly Ser Asp Glu Gly Glu Leu Cys Asp
1170 1175 1180
Gln Cys Ser Leu Asn Asn Gly Gly Cys Ser His Asn Cys Ser Val Ala
185 1190 1195 1200
Pro Gly Glu Gly Ile Val Cys Ser Cys Pro Leu Gly Met Glu Leu Gly
1205 1210 1215
Ser Asp Asn His Thr Cys Gln Ile Gln Ser Tyr Cys Ala Lys His Leu
1220 1225 1230
Lys Cys Ser Gln Lys Cys Asp Gln Asn Lys Phe Ser Val Lys Cys Ser
1235 1240 1245
Cys Tyr Glu Gly Trp Val Leu Glu Pro Asp Gly Glu Thr Cys Arg Ser
1250 1255 1260
Leu Asp Pro Phe Lys Leu Phe Ile Ile Phe Ser Asn Arg His Glu Ile
265 1270 1275 1280
Arg Arg Ile Asp Leu His Lys Gly Asp Tyr Ser Val Leu Val Pro Gly
1285 1290 1295
Leu Arg Asn Thr Ile Ala Leu Asp Phe His Leu Ser Gln Ser Ala Leu
1300 1305 1310
Tyr Trp Thr Asp Ala Val Glu Asp Lys Ile Tyr Arg Gly Lys Leu Leu
1315 1320 1325
Asp Asn Gly Ala Leu Thr Ser Phe Glu Val Val Ile Gln Tyr Gly Leu
1330 1335 1340
Ala Thr Pro Glu Gly Leu Ala Val Asp Trp Ile Ala Gly Asn Ile Tyr
345 1350 1355 1360
Trp Val Glu Ser Asn Leu Asp Gln Ile Glu Val Ala Lys Leu Asp Gly
1365 1370 1375

FIG.12B-4

Thr Leu Arg Thr Thr Leu Leu Ala Gly Asp Ile Glu His Pro Arg Ala
1380 1385 1390
Ile Ala Leu Asp Pro Arg Asp Gly Ile Leu Phe Trp Thr Asp Trp Asp
1395 1400 1405
Ala Ser Leu Pro Arg Ile Glu Ala Ala Ser Met Ser Gly Ala Gly Arg
1410 1415 1420
Arg Thr Ile His Arg Glu Thr Gly Ser Gly Gly Cys Ala Asn Gly Leu
425 1430 1435 1440
Thr Val Asp Tyr Leu Glu Lys Arg Ile Leu Trp Ile Asp Ala Arg Ser
1445 1450 1455
Asp Ala Ile Tyr Ser Ala Arg Tyr Asp Gly Ser Gly His Met Glu Val
1460 1465 1470
Leu Arg Gly His Glu Phe Leu Ser His Pro Phe Ala Val Thr Leu Tyr
1475 1480 1485
Gly Gly Glu Val Tyr Trp Thr Asp Trp Arg Thr Asn Thr Leu Ala Lys
1490 1495 1500
Ala Asn Lys Trp Thr Gly His Asn Val Thr Val Val Gln Arg Thr Asn
505 1510 1515 1520
Thr Gln Pro Phe Asp Leu Gln Val Tyr His Pro Ser Arg Gln Pro Met
1525 1530 1535
Ala Pro Asn Pro Cys Glu Ala Asn Gly Gly Arg Gly Pro Cys Ser His
1540 1545 1550
Leu Cys Leu Ile Asn Tyr Asn Arg Thr Val Ser Trp Ala Cys Pro His
1555 1560 1565
Leu Met Lys Leu His Lys Asp Asn Thr Thr Cys Tyr Glu Phe Lys Lys
1570 1575 1580
Phe Leu Leu Tyr Ala Arg Gln Met Glu Ile Arg Gly Val Asp Leu Asp
585 1590 1595 1600
Ala Pro Tyr Tyr Asn Tyr Ile Ile Ser Phe Thr Val Pro Asp Ile Asp
1605 1610 1615
Asn Val Thr Val Leu Asp Tyr Asp Ala Arg Glu Gln Arg Val Tyr Trp
1620 1625 1630
Ser Asp Val Arg Thr Gln Ala Ile Lys Arg Ala Phe Ile Asn Gly Thr
1635 1640 1645
Gly Val Glu Thr Val Val Ser Ala Asp Leu Pro Asn Ala His Gly Leu
1650 1655 1660
Ala Val Asp Trp Val Ser Arg Asn Leu Phe Trp Thr Ser Tyr Asp Thr
665 1670 1675 1680
Asn Lys Lys Gln Ile Asn Val Ala Arg Leu Asp Gly Ser Phe Lys Asn
1685 1690 1695
Ala Val Val Gln Gly Leu Glu Gln Pro His Gly Leu Val Val His Pro
1700 1705 1710

FIG.12B-5

Leu Arg Gly Lys Leu Tyr Trp Thr Asp Gly Asp Asn Ile Ser Met Ala
1715 1720 1725
Asn Met Asp Gly Ser Asn His Thr Leu Leu Phe Ser Gly Gln Lys Gly
1730 1735 1740
Pro Val Gly Leu Ala Ile Asp Phe Pro Glu Ser Lys Leu Tyr Trp Ile
745 1750 1755 1760
Ser Ser Gly Asn His Thr Ile Asn Arg Cys Asn Leu Asp Gly Ser Glu
1765 1770 1775
Leu Glu Val Ile Asp Thr Met Arg Ser Gln Leu Gly Lys Ala Thr Ala
1780 1785 1790
Leu Ala Ile Met Gly Asp Lys Leu Trp Trp Ala Asp Gln Val Ser Glu
1795 1800 1805
Lys Met Gly Thr Cys Asn Lys Ala Asp Gly Ser Gly Ser Val Val Leu
1810 1815 1820
Arg Asn Ser Thr Thr Leu Val Met His Met Lys Val Tyr Asp Glu Ser
825 1830 1835 1840
Ile Gln Leu Glu His Glu Gly Thr Asn Pro Cys Ser Val Asn Asn Gly
1845 1850 1855
Asp Cys Ser Gln Leu Cys Leu Pro Thr Ser Glu Thr Thr Arg Ser Cys
1860 1865 1870
Met Cys Thr Ala Gly Tyr Ser Leu Arg Ser Gly Gln Gln Ala Cys Glu
1875 1880 1885
Gly Val Gly Ser Phe Leu Leu Tyr Ser Val His Glu Gly Ile Arg Gly
1890 1895 1900
Ile Pro Leu Asp Pro Asn Asp Lys Ser Asp Ala Leu Val Pro Val Ser
905 1910 1915 1920
Gly Thr Ser Leu Ala Val Gly Ile Asp Phe His Ala Glu Asn Asp Thr
1925 1930 1935
Ile Tyr Trp Val Asp Met Gly Leu Ser Thr Ile Ser Arg Ala Lys Arg
1940 1945 1950
Asp Gln Thr Trp Arg Glu Asp Val Val Thr Asn Gly Ile Gly Arg Val
1955 1960 1965
Glu Gly Ile Ala Val Asp Trp Ile Ala Gly Asn Ile Tyr Trp Thr Asp
1970 1975 1980
Gln Gly Phe Asp Val Ile Glu Val Ala Arg Leu Asn Gly Ser Phe Arg
985 1990 1995 2000
Tyr Val Val Ile Ser Gln Gly Leu Asp Lys Pro Arg Ala Ile Thr Val
2005 2010 2015
His Pro Glu Lys Gly Tyr Leu Phe Trp Thr Glu Trp Gly His Tyr Pro
2020 2025 2030
Arg Ile Glu Arg Ser Arg Leu Asp Gly Thr Glu Arg Val Val Leu Val
2035 2040 2045

FIG.12B-6

Asn Val Ser Ile Ser Trp Pro Asn Gly Ile Ser Val Asp Tyr Gln Gly
2050 2055 2060
Gly Lys Leu Tyr Trp Cys Asp Ala Arg Met Asp Lys Ile Glu Arg Ile
065 2070 2075 2080
Asp Leu Glu Thr Gly Glu Asn Arg Glu Val Val Leu Ser Ser Asn Asn
2085 2090 2095
Met Asp Met Phe Ser Val Ser Val Phe Glu Asp Phe Ile Tyr Trp Ser
2100 2105 2110
Asp Arg Thr His Ala Asn Gly Ser Ile Lys Arg Gly Cys Lys Asp Asn
2115 2120 2125
Ala Thr Asp Ser Val Pro Leu Arg Thr Gly Ile Gly Val Gln Leu Lys
2130 2135 2140
Asp Ile Lys Val Phe Asn Arg Asp Arg Gln Lys Gly Thr Asn Val Cys
145 2150 2155 2160
Ala Val Ala Asn Gly Gly Cys Gln Gln Leu Cys Leu Tyr Arg Gly Gly
2165 2170 2175
Gly Gln Arg Ala Cys Ala Cys Ala His Gly Met Leu Ala Glu Asp Gly
2180 2185 2190
Ala Ser Cys Arg Glu Tyr Ala Gly Tyr Leu Leu Tyr Ser Glu Arg Thr
2195 2200 2205
Ile Leu Lys Ser Ile His Leu Ser Asp Glu Arg Asn Leu Asn Ala Pro
2210 2215 2220
Val Gln Pro Phe Glu Asp Pro Glu His Met Lys Asn Val Ile Ala Leu
225 2230 2235 2240
Ala Phe Asp Tyr Arg Ala Gly Thr Ser Pro Gly Thr Pro Asn Arg Ile
2245 2250 2255
Phe Phe Ser Asp Ile His Phe Gly Asn Ile Gln Gln Ile Asn Asp Asp
2260 2265 2270
Gly Ser Gly Arg Thr Thr Ile Val Glu Asn Val Gly Ser Val Glu Gly
2275 2280 2285
Leu Ala Tyr His Arg Gly Trp Asp Thr Leu Tyr Trp Thr Ser Tyr Thr
2290 2295 2300
Thr Ser Thr Ile Thr Arg His Thr Val Asp Gln Thr Arg Pro Gly Ala
305 2310 2315 2320
Phe Glu Arg Glu Thr Val Ile Thr Met Ser Gly Asp Asp His Pro Arg
2325 2330 2335
Ala Phe Val Leu Asp Glu Cys Gln Asn Leu Met Phe Trp Thr Asn Trp
2340 2345 2350
Asn Glu Leu His Pro Ser Ile Met Arg Ala Ala Leu Ser Gly Ala Asn
2355 2360 2365
Val Leu Thr Leu Ile Glu Lys Asp Ile Arg Thr Pro Asn Gly Leu Ala
2370 2375 2380

FIG.12B-7

Ile Asp His Arg Ala Glu Lys Leu Tyr Phe Ser Asp Ala Thr Leu Asp
385 2390 2395 2400
Lys Ile Glu Arg Cys Glu Tyr Asp Gly Ser His Arg Tyr Val Ile Leu
2405 2410 2415
Lys Ser Glu Pro Val His Pro Phe Gly Leu Ala Val Tyr Gly Glu His
2420 2425 2430
Ile Phe Trp Thr Asp Trp Val Arg Arg Ala Val Gln Arg Ala Asn Lys
2435 2440 2445
Tyr Val Gly Ser Asp Met Lys Leu Leu Arg Val Asp Ile Pro Gln Gln
2450 2455 2460
Pro Met Gly Ile Ile Ala Val Ala Asn Asp Thr Asn Ser Cys Glu Leu
465 2470 2475 2480
Ser Pro Cys Arg Ile Asn Asn Gly Gly Cys Gln Asp Leu Cys Leu Leu
2485 2490 2495
Thr His Gln Gly His Val Asn Cys Ser Cys Arg Gly Gly Arg Ile Leu
2500 2505 2510
Gln Glu Asp Phe Thr Cys Arg Ala Val Asn Ser Ser Cys Arg Ala Gln
2515 2520 2525
Asp Glu Phe Glu Cys Ala Asn Gly Glu Cys Ile Ser Phe Ser Leu Thr
2530 2535 2540
Cys Asp Gly Val Ser His Cys Lys Asp Lys Ser Asp Glu Lys Pro Ser
545 2550 2555 2560
Tyr Cys Asn Ser Arg Arg Cys Lys Lys Thr Phe Arg Gln Cys Asn Asn
2565 2570 2575
Gly Arg Cys Val Ser Asn Met Leu Trp Cys Asn Gly Val Asp Tyr Cys
2580 2585 2590
Gly Asp Gly Ser Asp Glu Ile Pro Cys Asn Lys Thr Ala Cys Gly Val
2595 2600 2605
Gly Glu Phe Arg Cys Arg Asp Gly Ser Cys Ile Gly Asn Ser Ser Arg
2610 2615 2620
Cys Asn Gln Phe Val Asp Cys Glu Asp Ala Ser Asp Glu Met Asn Cys
625 2630 2635 2640
Ser Ala Thr Asp Cys Ser Ser Tyr Phe Arg Leu Gly Val Lys Gly Val
2645 2650 2655
Leu Phe Gln Pro Cys Glu Arg Thr Ser Leu Cys Tyr Ala Pro Ser Trp
2660 2665 2670
Val Cys Asp Gly Ala Asn Asp Cys Gly Asp Tyr Ser Asp Glu Arg Asp
2675 2680 2685
Cys Pro Gly Val Lys Arg Pro Arg Cys Pro Leu Asn Tyr Phe Ala Cys
2690 2695 2700
Pro Ser Gly Arg Cys Ile Pro Met Ser Trp Thr Cys Asp Lys Glu Asp
705 2710 2715 2720

FIG.12B-8

Asp Cys Glu Asn Gly Glu Asp Glu Thr His Cys Asn Lys Phe Cys Ser
2725 2730 2735
Glu Ala Gln Phe Glu Cys Gln Asn His Arg Cys Ile Ser Lys Gln Trp
2740 2745 2750
Leu Cys Asp Gly Ser Asp Asp Cys Gly Asp Gly Ser Asp Glu Ala Ala
2755 2760 2765
His Cys Glu Gly Lys Thr Cys Gly Pro Ser Ser Phe Ser Cys Pro Gly
2770 2775 2780
Thr His Val Cys Val Pro Glu Arg Trp Leu Cys Asp Gly Asp Lys Asp
785 2790 2795 2800
Cys Thr Asp Gly Ala Asp Glu Ser Val Thr Ala Gly Cys Leu Tyr Asn
2805 2810 2815
Ser Thr Cys Asp Asp Arg Glu Phe Met Cys Gln Asn Arg Leu Cys Ile
2820 2825 2830
Pro Lys His Phe Val Cys Asp His Asp Arg Asp Cys Ala Asp Gly Ser
2835 2840 2845
Asp Glu Ser Pro Glu Cys Glu Tyr Pro Thr Cys Gly Pro Asn Glu Phe
2850 2855 2860
Arg Cys Ala Asn Gly Arg Cys Leu Ser Ser Arg Gln Trp Glu Cys Asp
865 2870 2875 2880
Gly Glu Asn Asp Cys His Asp His Ser Asp Glu Ala Pro Lys Asn Pro
2885 2890 2895
His Cys Thr Ser Pro Glu His Lys Cys Asn Ala Ser Ser Gln Phe Leu
2900 2905 2910
Cys Ser Ser Gly Arg Cys Val Ala Glu Ala Leu Leu Cys Asn Gly Gln
2915 2920 2925
Asp Asp Cys Gly Asp Gly Ser Asp Glu Arg Gly Cys His Val Asn Glu
2930 2935 2940
Cys Leu Ser Arg Lys Leu Ser Gly Cys Ser Gln Asp Cys Glu Asp Leu
945 2950 2955 2960
Lys Ile Gly Phe Lys Cys Arg Cys Arg Pro Gly Phe Arg Leu Lys Asp
2965 2970 2975
Asp Gly Arg Thr Cys Ala Asp Leu Asp Glu Cys Ser Thr Thr Phe Pro
2980 2985 2990
Cys Ser Gln Leu Cys Ile Asn Thr His Gly Ser Tyr Lys Cys Leu Cys
2995 3000 3005
Val Glu Gly Tyr Ala Pro Arg Gly Gly Asp Pro His Ser Cys Lys Ala
3010 3015 3020
Val Thr Asp Glu Glu Pro Phe Leu Ile Phe Ala Asn Arg Tyr Tyr Leu
025 3030 3035 3040
Arg Lys Leu Asn Leu Asp Gly Ser Asn Tyr Thr Leu Leu Lys Gln Gly
3045 3050 3055

FIG.12B-9

Leu Asn Asn Ala Val Ala Leu Ala Phe Asp Tyr Arg Glu Gln Met Ile
3060 3065 3070
Tyr Trp Thr Gly Val Thr Thr Gln Gly Ser Met Ile Arg Arg Met His
3075 3080 3085
Leu Asn Gly Ser Asn Val Gln Val Leu His Arg Thr Gly Leu Ser Asn
3090 3095 3100
Pro Asp Gly Leu Ala Val Asp Trp Val Gly Gly Asn Leu Tyr Trp Cys
105 3110 3115 3120
Asp Lys Gly Arg Asp Thr Ile Glu Val Ser Lys Leu Asn Gly Ala Tyr
3125 3130 3135
Arg Thr Val Leu Val Ser Ser Gly Leu Arg Glu Pro Arg Ala Leu Val
3140 3145 3150
Val Asp Val Gln Asn Gly Tyr Leu Tyr Trp Thr Asp Trp Gly Asp His
3155 3160 3165
Ser Leu Ile Gly Arg Ile Gly Met Asp Gly Ser Gly Arg Ser Ile Ile
3170 3175 3180
Val Asp Thr Lys Ile Thr Trp Pro Asn Gly Leu Thr Val Asp Tyr Val
185 3190 3195 3200
Thr Glu Arg Ile Tyr Trp Ala Asp Ala Arg Glu Asp Tyr Ile Glu Phe
3205 3210 3215
Ala Ser Leu Asp Gly Ser Asn Arg His Val Val Leu Ser Gln Asp Ile
3220 3225 3230
Pro His Ile Phe Ala Leu Thr Leu Phe Glu Asp Tyr Val Tyr Trp Thr
3235 3240 3245
Asp Trp Glu Thr Lys Ser Ile Asn Arg Ala His Lys Thr Thr Gly Ala
3250 3255 3260
Asn Lys Thr Leu Leu Ile Ser Thr Leu His Arg Pro Met Asp Leu His
265 3270 3275 3280
Val Phe His Ala Leu Arg Gln Pro Asp Val Pro Asn His Pro Cys Lys
3285 3290 3295
Val Asn Asn Gly Gly Cys Ser Asn Leu Cys Leu Leu Ser Pro Gly Gly
3300 3305 3310
Gly His Lys Cys Ala Cys Pro Thr Asn Phe Tyr Leu Gly Gly Asp Gly
3315 3320 3325
Arg Thr Cys Val Ser Asn Cys Thr Ala Ser Gln Phe Val Cys Lys Asn
3330 3335 3340
Asp Lys Cys Ile Pro Phe Trp Trp Lys Cys Asp Thr Glu Asp Asp Cys
345 3350 3355 3360
Gly Asp His Ser Asp Glu Pro Pro Asp Cys Pro Glu Phe Lys Cys Arg
3365 3370 3375
Pro Gly Gln Phe Gln Cys Ser Thr Gly Ile Cys Thr Asn Pro Ala Phe
3380 3385 3390

FIG.12B-10

Ile Cys Asp Gly Asp Asn Asp Cys Gln Asp Asn Ser Asp Glu Ala Asn
3395 3400 3405
Cys Asp Ile His Val Cys Leu Pro Ser Gln Phe Lys Cys Thr Asn Thr
3410 3415 3420
Asn Arg Cys Ile Pro Gly Ile Phe Arg Cys Asn Gly Gln Asp Asn Cys
425 3430 3435 3440
Gly Asp Gly Glu Asp Glu Arg Asp Cys Pro Glu Val Thr Cys Ala Pro
3445 3450 3455
Asn Gln Phe Gln Cys Ser Ile Thr Lys Arg Cys Ile Pro Arg Val Trp
3460 3465 3470
Val Cys Asp Arg Asp Asn His Cys Val Asp Gly Ser Asp Glu Pro Ala
3475 3480 3485
Asn Cys Thr Gln Met Thr Cys Gly Val Asp Glu Phe Arg Cys Lys Asp
3490 3495 3500
Ser Gly Arg Cys Ile Pro Ala Arg Trp Lys Cys Asp Gly Glu Asp Asp
505 3510 3515 3520
Cys Gly Asp Gly Ser Asp Glu Pro Lys Glu Glu Cys Asp Glu Arg Thr
3525 3530 3535
Cys Glu Pro Tyr Gln Phe Arg Cys Lys Asn Asn Arg Cys Val Pro Gly
3540 3545 3550
Arg Trp Gln Cys Asp Tyr Asp Asn Asp Cys Gly Asp Asn Ser Asp Glu
3555 3560 3565
Glu Ser Cys Thr Pro Arg Pro Cys Ser Glu Ser Glu Phe Phe Cys Ala
3570 3575 3580
Asn Gly Arg Cys Ile Ala Gly Arg Trp Lys Cys Asp Gly Asp His Asp
585 3590 3595 3600
Cys Ala Asp Gly Ser Asp Glu Lys Asp Cys Thr Pro Arg Cys Asp Met
3605 3610 3615
Asp Gln Phe Gln Cys Lys Ser Gly His Cys Ile Pro Leu Arg Trp Pro
3620 3625 3630
Cys Asp Ala Asp Ala Asp Cys Met Asp Gly Ser Asp Glu Glu Ala Cys
3635 3640 3645
Gly Thr Gly Val Arg Thr Cys Pro Leu Asp Glu Phe Gln Cys Asn Asn
3650 3655 3660
Thr Leu Cys Lys Pro Leu Ala Trp Lys Cys Asp Gly Glu Asp Asp Cys
665 3670 3675 3680
Gly Asp Asn Ser Asp Glu Asn Pro Glu Glu Cys Ala Arg Phe Ile Cys
3685 3690 3695
Pro Pro Asn Arg Pro Phe Arg Cys Lys Asn Asp Arg Val Cys Leu Trp
3700 3705 3710
Ile Gly Arg Gln Cys Asp Gly Val Asp Asn Cys Gly Asp Gly Thr Asp
3715 3720 3725

FIG.12B-11

Glu Glu Asp Cys Glu Pro Pro Thr Ala Gln Asn Pro His Cys Lys Asp
3730 3735 3740
Lys Lys Glu Phe Leu Cys Arg Asn Gln Arg Cys Leu Ser Ser Ser Leu
745 3750 3755 3760
Arg Cys Asn Met Phe Asp Asp Cys Gly Asp Gly Ser Asp Glu Glu Asp
3765 3770 3775
Cys Ser Ile Asp Pro Lys Leu Thr Ser Cys Ala Thr Asn Ala Ser Met
3780 3785 3790
Cys Gly Asp Glu Ala Arg Cys Val Arg Thr Glu Lys Ala Ala Tyr Cys
3795 3800 3805
Ala Cys Arg Ser Gly Phe His Thr Val Pro Gly Gln Pro Gly Cys Gln
3810 3815 3820
Asp Ile Asn Glu Cys Leu Arg Phe Gly Thr Cys Ser Gln Leu Trp Asn
825 3830 3835 3840
Lys Pro Lys Gly Gly His Leu Cys Ser Cys Ala Arg Asn Phe Met Lys
3845 3850 3855
Thr His Asn Thr Cys Lys Ala Glu Gly Ser Glu Tyr Gln Val Leu Tyr
3860 3865 3870
Ile Ala Asp Asp Asn Glu Ile Arg Ser Leu Phe Pro Gly His Pro His
3875 3880 3885
Ser Ala Tyr Glu Gln Thr Phe Gln Gly Asp Glu Ser Val Arg Ile Asp
3890 3895 3900
Ala Met Asp Val His Val Lys Ala Gly Arg Val Tyr Trp Thr Asn Trp
905 3910 3915 3920
His Thr Gly Thr Ile Ser Tyr Arg Ser Leu Pro Pro Ala Ala Pro Pro
3925 3930 3935
Thr Thr Ser Asn Arg His Arg Arg Gln Ile Asp Arg Gly Val Thr His
3940 3945 3950
Leu Asn Ile Ser Gly Leu Lys Met Pro Arg Gly Ile Ala Ile Asp Trp
3955 3960 3965
Val Ala Gly Asn Val Tyr Trp Thr Asp Ser Gly Arg Asp Val Ile Glu
3970 3975 3980
Val Ala Gln Met Lys Gly Glu Asn Arg Lys Thr Leu Ile Ser Gly Met
985 3990 3995 4000
Ile Asp Glu Pro His Ala Ile Val Val Asp Pro Leu Arg Gly Thr Met
4005 4010 4015
Tyr Trp Ser Asp Trp Gly Asn His Pro Lys Ile Glu Thr Ala Ala Met
4020 4025 4030
Asp Gly Thr Leu Arg Glu Thr Leu Val Gln Asp Asn Ile Gln Trp Pro
4035 4040 4045
Thr Gly Leu Ala Val Asp Tyr His Asn Glu Arg Leu Tyr Trp Ala Asp
4050 4055 4060

FIG.12B-12

Ala Lys Leu Ser Val Ile Gly Ser Ile Arg Leu Asn Gly Thr Asp Pro
065 4070 4075 4080
Ile Val Ala Ala Asp Ser Lys Arg Gly Leu Ser His Pro Phe Ser Ile
4085 4090 4095
Asp Val Phe Glu Asp Tyr Ile Tyr Gly Val Thr Tyr Ile Asn Asn Arg
4100 4105 4110
Val Phe Lys Ile His Lys Phe Gly His Ser Pro Leu Tyr Asn Leu Thr
4115 4120 4125
Gly Gly Leu Ser His Ala Ser Asp Val Val Leu Tyr His Gln His Lys
4130 4135 4140
Gln Pro Glu Val Thr Asn Pro Cys Asp Arg Lys Lys Cys Glu Trp Leu
145 4150 4155 4160
Cys Leu Leu Ser Pro Ser Gly Pro Val Cys Thr Cys Pro Asn Gly Lys
4165 4170 4175
Arg Leu Asp Asn Gly Thr Cys Val Pro Val Pro Ser Pro Thr Pro Pro
4180 4185 4190
Pro Asp Ala Pro Arg Pro Gly Thr Cys Thr Leu Gln Cys Phe Asn Gly
4195 4200 4205
Gly Ser Cys Phe Leu Asn Ala Arg Arg Gln Pro Lys Cys Arg Cys Gln
4210 4215 4220
Pro Arg Tyr Thr Gly Asp Lys Cys Glu Leu Asp Gln Cys Trp Glu Tyr
225 4230 4235 4240
Cys His Asn Gly Gly Thr Cys Ala Ala Ser Pro Ser Gly Met Pro Thr
4245 4250 4255
Cys Arg Cys Pro Thr Gly Phe Thr Gly Pro Lys Cys Thr Ala Gln Val
4260 4265 4270
Cys Ala Gly Tyr Cys Ser Asn Asn Ser Thr Cys Thr Val Asn Gln Gly
4275 4280 4285
Asn Gln Pro Gln Cys Arg Cys Leu Pro Gly Phe Leu Gly Asp Arg Cys
4290 4295 4300
Gln Tyr Arg Gln Cys Ser Gly Phe Cys Glu Asn Phe Gly Thr Cys Gln
305 4310 4315 4320
Met Ala Ala Asp Gly Ser Arg Gln Cys Arg Cys Thr Val Tyr Phe Glu
4325 4330 4335
Gly Pro Arg Cys Glu Val Asn Lys Cys Ser Arg Cys Leu Gln Gly Ala
4340 4345 4350
Cys Val Val Asn Lys Gln Thr Gly Asp Val Thr Cys Asn Cys Thr Asp
4355 4360 4365
Gly Arg Val Ala Pro Ser Cys Leu Thr Cys Ile Asp His Cys Ser Asn
4370 4375 4380
Gly Gly Ser Cys Thr Met Asn Ser Lys Met Met Pro Glu Cys Gln Cys
385 4390 4395 4400

FIG.12B-13

Pro Pro His Met Thr Gly Pro Arg Cys Gln Glu Gln Val Val Ser Gln
4405 4410 4415
Gln Gln Pro Gly His Met Ala Ser Ile Leu Ile Pro Leu Leu Leu Leu
4420 4425 4430
Leu Leu Leu Leu Leu Val Ala Gly Val Val Phe Trp Tyr Lys Arg Arg
4435 4440 4445
Val Arg Gly Ala Lys Gly Phe Gln His Gln Arg Met Thr Asn Gly Ala
4450 4455 4460
Met Asn Val Glu Ile Gly Asn Pro Thr Tyr Lys Met Tyr Glu Gly Gly
465 4470 4475 4480
Glu Pro Asp Asp Val Gly Gly Leu Leu Asp Ala Asp Phe Ala Leu Asp
4485 4490 4495
Pro Asp Lys Pro Thr Asn Phe Thr Asn Pro Val Tyr Ala Thr Leu Tyr
4500 4505 4510
Met Gly Gly His Gly Ser Arg His Ser Leu Ala Ser Thr Asp Glu Lys
4515 4520 4525
Arg Glu Leu Leu Gly Arg Gly Pro Glu Asp Glu Ile Gly Asp Pro Leu
4530 4535 4540
Ala
545

FIG.12B-14

```
GCTACAATCC ATCTGGTCTC CTCCAGCTCC TTCTTTCTGC AAC ATG GGG AAG AAC      55
                                                Met Gly Lys Asn
                                                 1

AAA CTC CTT CAT CCA AGT CTG GTT CTT CTC CTC TTG GTC CTC CTG CCC     103
Lys Leu Leu His Pro Ser Leu Val Leu Leu Leu Val Leu Leu Pro
 5                  10                  15                  20

ACA GAC GCC TCA GTC TCT GGA AAA CCG CAG TAT ATG GTT CTG GTC CCC     151
Thr Asp Ala Ser Val Ser Gly Lys Pro Gln Tyr Met Val Leu Val Pro
                25                  30                  35

TCC CTG CTC CAC ACT GAG ACC ACT GAG AAG GGC TGT GTC CTT CTG AGC     199
Ser Leu Leu His Thr Glu Thr Thr Glu Lys Gly Cys Val Leu Leu Ser
            40                  45                  50

TAC CTG AAT GAG ACA GTG ACT GTA AGT GCT TCC TTG GAG TCT GTC AGG     247
Tyr Leu Asn Glu Thr Val Thr Val Ser Ala Ser Leu Glu Ser Val Arg
        55                  60                  65

GGA AAC AGG AGC CTC TTC ACT GAC CTG GAG GCG GAG AAT GAC GTA CTC     295
Gly Asn Arg Ser Leu Phe Thr Asp Leu Glu Ala Glu Asn Asp Val Leu
    70                  75                  80

CAC TGT GTC GCC TTC GCT GTC CCA AAG TCT TCA TCC AAT GAG GAG GTA     343
His Cys Val Ala Phe Ala Val Pro Lys Ser Ser Ser Asn Glu Glu Val
85                  90                  95                  100

ATG TTC CTC ACT GTC CAA GTG AAA GGA CCA ACC CAA GAA TTT AAG AAG     391
Met Phe Leu Thr Val Gln Val Lys Gly Pro Thr Gln Glu Phe Lys Lys
                105                 110                 115

CGG ACC ACA GTG ATG GTT AAG AAC GAG GAC AGT CTG GTC TTT GTC CAG     439
Arg Thr Thr Val Met Val Lys Asn Glu Asp Ser Leu Val Phe Val Gln
            120                 125                 130

ACA GAC AAA TCA ATC TAC AAA CCA GGG CAG ACA GTG AAA TTT CGT GTT     487
Thr Asp Lys Ser Ile Tyr Lys Pro Gly Gln Thr Val Lys Phe Arg Val
        135                 140                 145

GTC TCC ATG GAT GAA AAC TTT CAC CCC CTG AAT GAG TTG ATT CCA CTA     535
Val Ser Met Asp Glu Asn Phe His Pro Leu Asn Glu Leu Ile Pro Leu
    150                 155                 160
```

FIG.13A-1

```
GTA TAC ATT CAG GAT CCC AAA GGA AAT CGC ATC GCA CAA TGG CAG AGT      583
Val Tyr Ile Gln Asp Pro Lys Gly Asn Arg Ile Ala Gln Trp Gln Ser
165                 170                 175                 180

TTC CAG TTA GAG GGT GGC CTC AAG CAA TTT TCT TTT CCC CTC TCA TCA      631
Phe Gln Leu Glu Gly Gly Leu Lys Gln Phe Ser Phe Pro Leu Ser Ser
                185                 190                 195

GAG CCC TTC CAG GGC TCC TAC AAG GTG GTG GTA CAG AAG AAA TCA GGT      679
Glu Pro Phe Gln Gly Ser Tyr Lys Val Val Val Gln Lys Lys Ser Gly
            200                 205                 210

GGA AGG ACA GAG CAC CCT TTC ACC GTG GAG GAA TTT GTT CTT CCC AAG      727
Gly Arg Thr Glu His Pro Phe Thr Val Glu Glu Phe Val Leu Pro Lys
        215                 220                 225

TTT GAA GTA CAA GTA ACA GTG CCA AAG ATA ATC ACC ATC TTG GAA GAA      775
Phe Glu Val Gln Val Thr Val Pro Lys Ile Ile Thr Ile Leu Glu Glu
    230                 235                 240

GAG ATG AAT GTA TCA GTG TGT GGC CTA TAC ACA TAT GGG AAG CCT GTC      823
Glu Met Asn Val Ser Val Cys Gly Leu Tyr Thr Tyr Gly Lys Pro Val
245                 250                 255                 260

CCT GGA CAT GTG ACT GTG AGC ATT TGC AGA AAG TAT AGT GAC GCT TCC      871
Pro Gly His Val Thr Val Ser Ile Cys Arg Lys Tyr Ser Asp Ala Ser
                265                 270                 275

GAC TGC CAC GGT GAA GAT TCA CAG GCT TTC TGT GAG AAA TTC AGT GGA      919
Asp Cys His Gly Glu Asp Ser Gln Ala Phe Cys Glu Lys Phe Ser Gly
            280                 285                 290

CAG CTA AAC AGC CAT GGC TGC TTC TAT CAG CAA GTA AAA ACC AAG GTC      967
Gln Leu Asn Ser His Gly Cys Phe Tyr Gln Gln Val Lys Thr Lys Val
        295                 300                 305

TTC CAG CTG AAG AGG AAG GAG TAT GAA ATG AAA CTT CAC ACT GAG GCC     1015
Phe Gln Leu Lys Arg Lys Glu Tyr Glu Met Lys Leu His Thr Glu Ala
    310                 315                 320

CAG ATC CAA GAA GAA GGA ACA GTG GTG GAA TTG ACT GGA AGG CAG TCC     1063
Gln Ile Gln Glu Glu Gly Thr Val Val Glu Leu Thr Gly Arg Gln Ser
325                 330                 335                 340
```

FIG.13A-2

```
AGT GAA ATC ACA AGA ACC ATA ACC AAA CTC TCA TTT GTG AAA GTG GAC      1111
Ser Glu Ile Thr Arg Thr Ile Thr Lys Leu Ser Phe Val Lys Val Asp
            345                 350                 355

TCA CAC TTT CGA CAG GGA ATT CCC TTC TTT GGG CAG GTG CGC CTA GTA      1159
Ser His Phe Arg Gln Gly Ile Pro Phe Phe Gly Gln Val Arg Leu Val
        360                 365                 370

GAT GGG AAA GGC GTC CCT ATA CCA AAT AAA GTC ATA TTC ATC AGA GGA      1207
Asp Gly Lys Gly Val Pro Ile Pro Asn Lys Val Ile Phe Ile Arg Gly
    375                 380                 385

AAT GAA GCA AAC TAT TAC TCC AAT GCT ACC ACG GAT GAG CAT GGC CTT      1255
Asn Glu Ala Asn Tyr Tyr Ser Asn Ala Thr Thr Asp Glu His Gly Leu
390                 395                 400

GTA CAG TTC TCT ATC AAC ACC ACC AAC GTT ATG GGT ACC TCT CTT ACT      1303
Val Gln Phe Ser Ile Asn Thr Thr Asn Val Met Gly Thr Ser Leu Thr
405                 410                 415                 420

GTT AGG GTC AAT TAC AAG GAT CGT AGT CCC TGT TAC GGC TAC CAG TGG      1351
Val Arg Val Asn Tyr Lys Asp Arg Ser Pro Cys Tyr Gly Tyr Gln Trp
            425                 430                 435

GTG TCA GAA GAA CAC GAA GAG GCA CAT CAC ACT GCT TAT CTT GTG TTC      1399
Val Ser Glu Glu His Glu Glu Ala His His Thr Ala Tyr Leu Val Phe
        440                 445                 450

TCC CCA AGC AAG AGC TTT GTC CAC CTT GAG CCC ATG TCT CAT GAA CTA      1447
Ser Pro Ser Lys Ser Phe Val His Leu Glu Pro Met Ser His Glu Leu
    455                 460                 465

CCC TGT GGC CAT ACT CAG ACA GTC CAG GCA CAT TAT ATT CTG AAT GGA      1495
Pro Cys Gly His Thr Gln Thr Val Gln Ala His Tyr Ile Leu Asn Gly
470                 475                 480

GGC ACC CTG CTG GGG CTG AAG AAG CTC TCC TTT TAT TAT CTG ATA ATG      1543
Gly Thr Leu Leu Gly Leu Lys Lys Leu Ser Phe Tyr Tyr Leu Ile Met
485                 490                 495                 500

GCA AAG GGA GGC ATT GTC CGA ACT GGG ACT CAT GGA CTG CTT GTG AAG      1591
Ala Lys Gly Gly Ile Val Arg Thr Gly Thr His Gly Leu Leu Val Lys
            505                 510                 515
```

FIG.13A-3

```
CAG GAA GAC ATG AAG GGC CAT TTT TCC ATC TCA ATC CCT GTG AAG TCA      1639
Gln Glu Asp Met Lys Gly His Phe Ser Ile Ser Ile Pro Val Lys Ser
            520                 525                 530

GAC ATT GCT CCT GTC GCT CGG TTG CTC ATC TAT GCT GTT TTA CCT ACC      1687
Asp Ile Ala Pro Val Ala Arg Leu Leu Ile Tyr Ala Val Leu Pro Thr
        535                 540                 545

GGG GAC GTG ATT GGG GAT TCT GCA AAA TAT GAT GTT GAA AAT TGT CTG      1735
Gly Asp Val Ile Gly Asp Ser Ala Lys Tyr Asp Val Glu Asn Cys Leu
    550                 555                 560

GCC AAC AAG GTG GAT TTG AGC TTC AGC CCA TCA CAA AGT CTC CCA GCC      1783
Ala Asn Lys Val Asp Leu Ser Phe Ser Pro Ser Gln Ser Leu Pro Ala
565                 570                 575                 580

TCA CAC GCC CAC CTG CGA GTC ACA GCG GCT CCT CAG TCC GTC TGC GCC      1831
Ser His Ala His Leu Arg Val Thr Ala Ala Pro Gln Ser Val Cys Ala
                585                 590                 595

CTC CGT GCT GTG GAC CAA AGC GTG CTG CTC ATG AAG CCT GAT GCT GAG      1879
Leu Arg Ala Val Asp Gln Ser Val Leu Leu Met Lys Pro Asp Ala Glu
            600                 605                 610

CTC TCG GCG TCC TCG GTT TAC AAC CTG CTA CCA GAA AAG GAC CTC ACT      1927
Leu Ser Ala Ser Ser Val Tyr Asn Leu Leu Pro Glu Lys Asp Leu Thr
        615                 620                 625

GGC TTC CCT GGG CCT TTG AAT GAC CAG GAC GAT GAA GAC TGC ATC AAT      1975
Gly Phe Pro Gly Pro Leu Asn Asp Gln Asp Asp Glu Asp Cys Ile Asn
    630                 635                 640

CGT CAT AAT GTC TAT ATT AAT GGA ATC ACA TAT ACT CCA GTA TCA AGT      2023
Arg His Asn Val Tyr Ile Asn Gly Ile Thr Tyr Thr Pro Val Ser Ser
645                 650                 655                 660

ACA AAT GAA AAG GAT ATG TAC AGC TTC CTA GAG GAC ATG GGC TTA AAG      2071
Thr Asn Glu Lys Asp Met Tyr Ser Phe Leu Glu Asp Met Gly Leu Lys
                665                 670                 675

GCA TTC ACC AAC TCA AAG ATT CGT AAA CCC AAA ATG TGT CCA CAG CTT      2119
Ala Phe Thr Asn Ser Lys Ile Arg Lys Pro Lys Met Cys Pro Gln Leu
            680                 685                 690
```

FIG.13A-4

```
CAA CAG TAT GAA ATG CAT GGA CCT GAA GGT CTA CGT GTA GGT TTT TAT      2167
Gln Gln Tyr Glu Met His Gly Pro Glu Gly Leu Arg Val Gly Phe Tyr
        695                 700                 705

GAG TCA GAT GTA ATG GGA AGA GGC CAT GCA CGC CTG GTG CAT GTT GAA      2215
Glu Ser Asp Val Met Gly Arg Gly His Ala Arg Leu Val His Val Glu
    710                 715                 720

GAG CCT CAC ACG GAG ACC GTA CGA AAG TAC TTC CCT GAG ACA TGG ATC      2263
Glu Pro His Thr Glu Thr Val Arg Lys Tyr Phe Pro Glu Thr Trp Ile
725                 730                 735                 740

TGG GAT TTG GTG GTG GTA AAC TCA GCA GGG GTG GCT GAG GTA GGA GTA      2311
Trp Asp Leu Val Val Val Asn Ser Ala Gly Val Ala Glu Val Gly Val
                745                 750                 755

ACA GTC CCT GAC ACC ATC ACC GAG TGG AAG GCA GGG GCC TTC TGC CTG      2359
Thr Val Pro Asp Thr Ile Thr Glu Trp Lys Ala Gly Ala Phe Cys Leu
            760                 765                 770

TCT GAA GAT GCT GGA CTT GGT ATC TCT TCC ACT GCC TCT CTC CGA GCC      2407
Ser Glu Asp Ala Gly Leu Gly Ile Ser Ser Thr Ala Ser Leu Arg Ala
        775                 780                 785

TTC CAG CCC TTC TTT GTG GAG CTT ACA ATG CCT TAC TCT GTG ATT CGT      2455
Phe Gln Pro Phe Phe Val Glu Leu Thr Met Pro Tyr Ser Val Ile Arg
    790                 795                 800

GGA GAG GCC TTC ACA CTC AAG GCC ACG GTC CTA AAC TAC CTT CCC AAA      2503
Gly Glu Ala Phe Thr Leu Lys Ala Thr Val Leu Asn Tyr Leu Pro Lys
805                 810                 815                 820

TGC ATC CGG GTC AGT GTG CAG CTG GAA GCC TCT CCC GCC TTC CTT GCT      2551
Cys Ile Arg Val Ser Val Gln Leu Glu Ala Ser Pro Ala Phe Leu Ala
                825                 830                 835

GTC CCA GTG GAG AAG GAA CAA GCG CCT CAC TGC ATC TGT GCA AAC GGG      2599
Val Pro Val Glu Lys Glu Gln Ala Pro His Cys Ile Cys Ala Asn Gly
            840                 845                 850

CGG CAA ACT GTG TCC TGG GCA GTA ACC CCA AAG TCA TTA GGA AAT GTG      2647
Arg Gln Thr Val Ser Trp Ala Val Thr Pro Lys Ser Leu Gly Asn Val
        855                 860                 865
```

FIG.13A-5

```
AAT TTC ACT GTG AGC GCA GAG GCA CTA GAG TCT CAA GAG CTG TGT GGG      2695
Asn Phe Thr Val Ser Ala Glu Ala Leu Glu Ser Gln Glu Leu Cys Gly
    870                 875                 880

ACT GAG GTG CCT TCA GTT CCT GAA CAC GGA AGG AAA GAC ACA GTC ATC      2743
Thr Glu Val Pro Ser Val Pro Glu His Gly Arg Lys Asp Thr Val Ile
885                 890                 895                 900

AAG CCT CTG TTG GTT GAA CCT GAA GGA CTA GAG AAG GAA ACA ACA TTC      2791
Lys Pro Leu Leu Val Glu Pro Glu Gly Leu Glu Lys Glu Thr Thr Phe
                905                 910                 915

AAC TCC CTA CTT TGT CCA TCA GGT GGT GAG GTT TCT GAA GAA TTA TCC      2839
Asn Ser Leu Leu Cys Pro Ser Gly Gly Glu Val Ser Glu Glu Leu Ser
            920                 925                 930

CTG AAA CTG CCA CCA AAT GTG GTA GAA GAA TCT GCC CGA GCT TCT GTC      2887
Leu Lys Leu Pro Pro Asn Val Val Glu Glu Ser Ala Arg Ala Ser Val
        935                 940                 945

TCA GTT TTG GGA GAC ATA TTA GGC TCT GCC ATG CAA AAC ACA CAA AAT      2935
Ser Val Leu Gly Asp Ile Leu Gly Ser Ala Met Gln Asn Thr Gln Asn
    950                 955                 960

CTT CTC CAG ATG CCC TAT GGC TGT GGA GAG CAG AAT ATG GTC CTC TTT      2983
Leu Leu Gln Met Pro Tyr Gly Cys Gly Glu Gln Asn Met Val Leu Phe
965                 970                 975                 980

GCT CCT AAC ATC TAT GTA CTG GAT TAT CTA AAT GAA ACA CAG CAG CTT      3031
Ala Pro Asn Ile Tyr Val Leu Asp Tyr Leu Asn Glu Thr Gln Gln Leu
                985                 990                 995

ACT CCA GAG GTC AAG TCC AAG GCC ATT GGC TAT CTC AAC ACT GGT TAC      3079
Thr Pro Glu Val Lys Ser Lys Ala Ile Gly Tyr Leu Asn Thr Gly Tyr
            1000                1005                1010

CAG AGA CAG TTG AAC TAC AAA CAC TAT GAT GGC TCC TAC AGC ACC TTT      3127
Gln Arg Gln Leu Asn Tyr Lys His Tyr Asp Gly Ser Tyr Ser Thr Phe
        1015                1020                1025

GGG GAG CGA TAT GGC AGG AAC CAG GGC AAC ACC TGG CTC ACA GCC TTT      3175
Gly Glu Arg Tyr Gly Arg Asn Gln Gly Asn Thr Trp Leu Thr Ala Phe
    1030                1035                1040
```

FIG.13A-6

```
GTT CTG AAG ACT TTT GCC CAA GCT CGA GCC TAC ATC TTC ATC GAT GAA   3223
Val Leu Lys Thr Phe Ala Gln Ala Arg Ala Tyr Ile Phe Ile Asp Glu
1045                1050                1055                1060

GCA CAC ATT ACC CAA GCC CTC ATA TGG CTC TCC CAG AGG CAG AAG GAC   3271
Ala His Ile Thr Gln Ala Leu Ile Trp Leu Ser Gln Arg Gln Lys Asp
                1065                1070                1075

AAT GGC TGT TTC AGG AGC TCT GGG TCA CTG CTC AAC AAT GCC ATA AAG   3319
Asn Gly Cys Phe Arg Ser Ser Gly Ser Leu Leu Asn Asn Ala Ile Lys
            1080                1085                1090

GGA GGA GTA GAA GAT GAA GTG ACC CTC TCC GCC TAT ATC ACC ATC GCC   3367
Gly Gly Val Glu Asp Glu Val Thr Leu Ser Ala Tyr Ile Thr Ile Ala
        1095                1100                1105

CTT CTG GAG ATT CCT CTC ACA GTC ACT CAC CCT GTT GTC CGC AAT GCC   3415
Leu Leu Glu Ile Pro Leu Thr Val Thr His Pro Val Val Arg Asn Ala
    1110                1115                1120

CTG TTT TGC CTG GAG TCA GCC TGG AAG ACA GCA CAA GAA GGG GAC CAT   3463
Leu Phe Cys Leu Glu Ser Ala Trp Lys Thr Ala Gln Glu Gly Asp His
1125                1130                1135                1140

GGC AGC CAT GTA TAT ACC AAA GCA CTG CTG GCC TAT GCT TTT GCC CTG   3511
Gly Ser His Val Tyr Thr Lys Ala Leu Leu Ala Tyr Ala Phe Ala Leu
                1145                1150                1155

GCA GGT AAC CAG GAC AAG AGG AAG GAA GTA CTC AAG TCA CTT AAT GAG   3559
Ala Gly Asn Gln Asp Lys Arg Lys Glu Val Leu Lys Ser Leu Asn Glu
            1160                1165                1170

GAA GCT GTG AAG AAA GAC AAC TCT GTC CAT TGG GAG CGC CCT CAG AAA   3607
Glu Ala Val Lys Lys Asp Asn Ser Val His Trp Glu Arg Pro Gln Lys
        1175                1180                1185

CCC AAG GCA CCA GTG GGG CAT TTT TAC GAA CCC CAG GCT CCC TCT GCT   3655
Pro Lys Ala Pro Val Gly His Phe Tyr Glu Pro Gln Ala Pro Ser Ala
    1190                1195                1200

GAG GTG GAG ATG ACA TCC TAT GTG CTC CTC GCT TAT CTC ACG GCC CAG   3703
Glu Val Glu Met Thr Ser Tyr Val Leu Leu Ala Tyr Leu Thr Ala Gln
1205                1210                1215                1220
```

FIG.13A-7

```
CCA GCC CCA ACC TCG GAG GAC CTG ACC TCT GCA ACC AAC ATC GTG AAG      3751
Pro Ala Pro Thr Ser Glu Asp Leu Thr Ser Ala Thr Asn Ile Val Lys
1225                 1230                 1235

TGG ATC ACG AAG CAG CAG AAT GCC CAG GGC GGT TTC TCC TCC ACC CAG      3799
Trp Ile Thr Lys Gln Gln Asn Ala Gln Gly Gly Phe Ser Ser Thr Gln
1240                 1245                 1250

GAC ACA GTG GTG GCT CTC CAT GCT CTG TCC AAA TAT GGA GCC GCC ACA      3847
Asp Thr Val Val Ala Leu His Ala Leu Ser Lys Tyr Gly Ala Ala Thr
1255                 1260                 1265

TTT ACC AGG ACT GGG AAG GCT GCA CAG GTG ACT ATC CAG TCT TCA GGG      3895
Phe Thr Arg Thr Gly Lys Ala Ala Gln Val Thr Ile Gln Ser Ser Gly
1270                 1275                 1280

ACA TTT TCC AGC AAA TTC CAA GTG GAC AAC AAC AAT CGC CTG TTA CTG      3943
Thr Phe Ser Ser Lys Phe Gln Val Asp Asn Asn Asn Arg Leu Leu Leu
1285                 1290                 1295                 1300

CAG CAG GTC TCA TTG CCA GAG CTG CCT GGG GAA TAC AGC ATG AAA GTG      3991
Gln Gln Val Ser Leu Pro Glu Leu Pro Gly Glu Tyr Ser Met Lys Val
1305                 1310                 1315

ACA GGA GAA GGA TGT GTC TAC CTC CAG ACC TCC TTG AAA TAC AAT ATT      4039
Thr Gly Glu Gly Cys Val Tyr Leu Gln Thr Ser Leu Lys Tyr Asn Ile
1320                 1325                 1330

CTC CCA GAA AAG GAA GAG TTC CCC TTT GCT TTA GGA GTG CAG ACT CTG      4087
Leu Pro Glu Lys Glu Glu Phe Pro Phe Ala Leu Gly Val Gln Thr Leu
1335                 1340                 1345

CCT CAA ACT TGT GAT GAA CCC AAA GCC CAC ACC AGC TTC CAA ATC TCC      4135
Pro Gln Thr Cys Asp Glu Pro Lys Ala His Thr Ser Phe Gln Ile Ser
1350                 1355                 1360

CTA AGT GTC AGT TAC ACA GGG AGC CGC TCT GCC TCC AAC ATG GCG ATC      4183
Leu Ser Val Ser Tyr Thr Gly Ser Arg Ser Ala Ser Asn Met Ala Ile
1365                 1370                 1375                 1380

GTT GAT GTG AAG ATG GTC TCT GGC TTC ATT CCC CTG AAG CCA ACA GTG      4231
Val Asp Val Lys Met Val Ser Gly Phe Ile Pro Leu Lys Pro Thr Val
1385                 1390                 1395
```

FIG.13A-8

```
AAA ATG CTT GAA AGA TCT AAC CAT GTG AGC CGG ACA GAA GTC AGC AGC      4279
Lys Met Leu Glu Arg Ser Asn His Val Ser Arg Thr Glu Val Ser Ser
1400                 1405                 1410

AAC CAT GTC TTG ATT TAC CTT GAT AAG GTG TCA AAT CAG ACA CTG AGC      4327
Asn His Val Leu Ile Tyr Leu Asp Lys Val Ser Asn Gln Thr Leu Ser
1415                 1420                 1425

TTG TTC TTC ACG GTT CTG CAA GAT GTC CCA GTA AGA GAT CTC AAA CCA      4375
Leu Phe Phe Thr Val Leu Gln Asp Val Pro Val Arg Asp Leu Lys Pro
1430                 1435                 1440

GCC ATA GTG AAA GTC TAT GAT TAC TAC GAG ACG GAT GAG TTT GCA ATC      4423
Ala Ile Val Lys Val Tyr Asp Tyr Tyr Glu Thr Asp Glu Phe Ala Ile
1445                 1450                 1455                 1460

GCT GAG TAC AAT GCT CCT TGC AGC AAA GAT CTT GGA AAT GCT TGAAGACCA    4474
Ala Glu Tyr Asn Ala Pro Cys Ser Lys Asp Leu Gly Asn Ala
1465                 1470                 1

CAAGGCTGAA AAGTGCTTTG CTGGAGTCCT GTTCTCTGAG CTCCACAGAA GACACGTGTT    4534
TTTGTATCTT TAAAGACTTG ATGAATAAAC ACTTTTTCTG GTC                      4577
```

FIG.13A-9

Ser Val Ser Gly Lys Pro Gln Tyr Met Val Leu Val Pro Ser Leu Leu
1 5 10 15
His Thr Glu Thr Thr Glu Lys Gly Cys Val Leu Leu Ser Tyr Leu Asn
20 25 30
Glu Thr Val Thr Val Ser Ala Ser Leu Glu Ser Val Arg Gly Asn Arg
35 40 45
Ser Leu Phe Thr Asp Leu Glu Ala Glu Asn Asp Val Leu His Cys Val
50 55 60
Ala Phe Ala Val Pro Lys Ser Ser Ser Asn Glu Glu Val Met Phe Leu
65 70 75 80
Thr Val Gln Val Lys Gly Pro Thr Gln Glu Phe Lys Lys Arg Thr Thr
85 90 95
Val Met Val Lys Asn Glu Asp Ser Leu Val Phe Val Gln Thr Asp Lys
100 105 110
Ser Ile Tyr Lys Pro Gly Gln Thr Val Lys Phe Arg Val Val Ser Met
115 120 125
Asp Glu Asn Phe His Pro Leu Asn Glu Leu Ile Pro Leu Val Tyr Ile
130 135 140
Gln Asp Pro Lys Gly Asn Arg Ile Ala Gln Trp Gln Ser Phe Gln Leu
145 150 155 160
Glu Gly Gly Leu Lys Gln Phe Ser Phe Pro Leu Ser Ser Glu Pro Phe
165 170 175
Gln Gly Ser Tyr Lys Val Val Val Gln Lys Lys Ser Gly Gly Arg Thr
180 185 190
Glu His Pro Phe Thr Val Glu Glu Phe Val Leu Pro Lys Phe Glu Val
195 200 205
Gln Val Thr Val Pro Lys Ile Ile Thr Ile Leu Glu Glu Glu Met Asn
210 215 220
Val Ser Val Cys Gly Leu Tyr Thr Tyr Gly Lys Pro Val Pro Gly His
225 230 235 240
Val Thr Val Ser Ile Cys Arg Lys Tyr Ser Asp Ala Ser Asp Cys His
245 250 255
Gly Glu Asp Ser Gln Ala Phe Cys Glu Lys Phe Ser Gly Gln Leu Asn
260 265 270
Ser His Gly Cys Phe Tyr Gln Gln Val Lys Thr Lys Val Phe Gln Leu
275 280 285
Lys Arg Lys Glu Tyr Glu Met Lys Leu His Thr Glu Ala Gln Ile Gln
290 295 300
Glu Glu Gly Thr Val Val Glu Leu Thr Gly Arg Gln Ser Ser Glu Ile
305 310 315 320

FIG.13B-1

Thr Arg Thr Ile Thr Lys Leu Ser Phe Val Lys Val Asp Ser His Phe
325 330 335
Arg Gln Gly Ile Pro Phe Phe Gly Gln Val Arg Leu Val Asp Gly Lys
340 345 350
Gly Val Pro Ile Pro Asn Lys Val Ile Phe Ile Arg Gly Asn Glu Ala
355 360 365
Asn Tyr Tyr Ser Asn Ala Thr Thr Asp Glu His Gly Leu Val Gln Phe
370 375 380
Ser Ile Asn Thr Thr Asn Val Met Gly Thr Ser Leu Thr Val Arg Val
385 390 395 400
Asn Tyr Lys Asp Arg Ser Pro Cys Tyr Gly Tyr Gln Trp Val Ser Glu
405 410 415
Glu His Glu Glu Ala His His Thr Ala Tyr Leu Val Phe Ser Pro Ser
420 425 430
Lys Ser Phe Val His Leu Glu Pro Met Ser His Glu Leu Pro Cys Gly
435 440 445
His Thr Gln Thr Val Gln Ala His Tyr Ile Leu Asn Gly Gly Thr Leu
450 455 460
Leu Gly Leu Lys Lys Leu Ser Phe Tyr Tyr Leu Ile Met Ala Lys Gly
465 470 475 480
Gly Ile Val Arg Thr Gly Thr His Gly Leu Leu Val Lys Gln Glu Asp
485 490 495
Met Lys Gly His Phe Ser Ile Ser Ile Pro Val Lys Ser Asp Ile Ala
500 505 510
Pro Val Ala Arg Leu Leu Ile Tyr Ala Val Leu Pro Thr Gly Asp Val
515 520 525
Ile Gly Asp Ser Ala Lys Tyr Asp Val Glu Asn Cys Leu Ala Asn Lys
530 535 540
Val Asp Leu Ser Phe Ser Pro Ser Gln Ser Leu Pro Ala Ser His Ala
545 550 555 560
His Leu Arg Val Thr Ala Ala Pro Gln Ser Val Cys Ala Leu Arg Ala
565 570 575
Val Asp Gln Ser Val Leu Leu Met Lys Pro Asp Ala Glu Leu Ser Ala
580 585 590
Ser Ser Val Tyr Asn Leu Leu Pro Glu Lys Asp Leu Thr Gly Phe Pro
595 600 605
Gly Pro Leu Asn Asp Gln Asp Asp Glu Asp Cys Ile Asn Arg His Asn
610 615 620
Val Tyr Ile Asn Gly Ile Thr Tyr Thr Pro Val Ser Ser Thr Asn Glu
625 630 635 640

FIG.13B-2

Lys Asp Met Tyr Ser Phe Leu Glu Asp Met Gly Leu Lys Ala Phe Thr
645 650 655
Asn Ser Lys Ile Arg Lys Pro Lys Met Cys Pro Gln Leu Gln Gln Tyr
660 665 670
Thr Glu Thr Val Arg Lys Tyr Phe Pro Glu Thr Trp Ile Trp Asp Leu
705 710 715 720
Val Val Val Asn Ser Ala Gly Val Ala Glu Val Gly Val Thr Val Pro
725 730 735
Asp Thr Ile Thr Glu Trp Lys Ala Gly Ala Phe Cys Leu Ser Glu Asp
740 745 750
Ala Gly Leu Gly Ile Ser Ser Thr Ala Ser Leu Arg Ala Phe Gln Pro
755 760 765
Phe Phe Val Glu Leu Thr Met Pro Tyr Ser Val Ile Arg Gly Glu Ala
770 775 780
Phe Thr Leu Lys Ala Thr Val Leu Asn Tyr Leu Pro Lys Cys Ile Arg
785 790 795 800
Val Ser Val Gln Leu Glu Ala Ser Pro Ala Phe Leu Ala Val Pro Val
805 810 815
Glu Lys Glu Gln Ala Pro His Cys Ile Cys Ala Asn Gly Arg Gln Thr
820 825 830
Val Ser Trp Ala Val Thr Pro Lys Ser Leu Gly Asn Val Asn Phe Thr
835 840 845
Val Ser Ala Glu Ala Leu Glu Ser Gln Glu Leu Cys Gly Thr Glu Val
850 855 860
Pro Ser Val Pro Glu His Gly Arg Lys Asp Thr Val Ile Lys Pro Leu
865 870 875 880
Leu Val Glu Pro Glu Gly Leu Glu Lys Glu Thr Thr Phe Asn Ser Leu
885 890 895
Leu Cys Pro Ser Gly Gly Glu Val Ser Glu Glu Leu Ser Leu Lys Leu
900 905 910
Pro Pro Asn Val Val Glu Glu Ser Ala Arg Ala Ser Val Ser Val Leu
915 920 925
Gly Asp Ile Leu Gly Ser Ala Met Gln Asn Thr Gln Asn Leu Leu Gln
930 935 940
Met Pro Tyr Gly Cys Gly Glu Gln Asn Met Val Leu Phe Ala Pro Asn
945 950 955 960
Ile Tyr Val Leu Asp Tyr Leu Asn Glu Thr Gln Gln Leu Thr Pro Glu
965 970 975
Val Lys Ser Lys Ala Ile Gly Tyr Leu Asn Thr Gly Tyr Gln Arg Gln
980 985 990

FIG.13B-3

Leu Asn Tyr Lys His Tyr Asp Gly Ser Tyr Ser Thr Phe Gly Glu Arg
995 1000 1005
Tyr Gly Arg Asn Gln Gly Asn Thr Trp Leu Thr Ala Phe Val Leu Lys
1010 1015 1020
Thr Phe Ala Gln Ala Arg Ala Tyr Ile Phe Ile Asp Glu Ala His Ile
025 1030 1035 1040
Thr Gln Ala Leu Ile Trp Leu Ser Gln Arg Gln Lys Asp Asn Gly Cys
1045 1050 1055
Phe Arg Ser Ser Gly Ser Leu Leu Asn Asn Ala Ile Lys Gly Gly Val
1060 1065 1070
Glu Asp Glu Val Thr Leu Ser Ala Tyr Ile Thr Ile Ala Leu Leu Glu
1075 1080 1085
Ile Pro Leu Thr Val Thr His Pro Val Val Arg Asn Ala Leu Phe Cys
1090 1095 1100
Leu Glu Ser Ala Trp Lys Thr Ala Gln Glu Gly Asp His Gly Ser His
105 1110 1115 1120
Val Tyr Thr Lys Ala Leu Leu Ala Tyr Ala Phe Ala Leu Ala Gly Asn
1125 1130 1135
Gln Asp Lys Arg Lys Glu Val Leu Lys Ser Leu Asn Glu Glu Ala Val
1140 1145 1150
Lys Lys Asp Asn Ser Val His Trp Glu Arg Pro Gln Lys Pro Lys Ala
1155 1160 1165
Pro Val Gly His Phe Tyr Glu Pro Gln Ala Pro Ser Ala Glu Val Glu
1170 1175 1180
Met Thr Ser Tyr Val Leu Leu Ala Tyr Leu Thr Ala Gln Pro Ala Pro
185 1190 1195 1200
Thr Ser Glu Asp Leu Thr Ser Ala Thr Asn Ile Val Lys Trp Ile Thr
1205 1210 1215
Lys Gln Gln Asn Ala Gln Gly Gly Phe Ser Ser Thr Gln Asp Thr Val
1220 1225 1230
Val Ala Leu His Ala Leu Ser Lys Tyr Gly Ala Ala Thr Phe Thr Arg
1235 1240 1245
Thr Gly Lys Ala Ala Gln Val Thr Ile Gln Ser Ser Gly Thr Phe Ser
1250 1255 1260
Ser Lys Phe Gln Val Asp Asn Asn Asn Arg Leu Leu Leu Gln Gln Val
265 1270 1275 1280
Ser Leu Pro Glu Leu Pro Gly Glu Tyr Ser Met Lys Val Thr Gly Glu
1285 1290 1295
Gly Cys Val Tyr Leu Gln Thr Ser Leu Lys Tyr Asn Ile Leu Pro Glu
1300 1305 1310

FIG.13B-4

Lys Glu Glu Phe Pro Phe Ala Leu Gly Val Gln Thr Leu Pro Gln Thr
1315 1320 1325
Cys Asp Glu Pro Lys Ala His Thr Ser Phe Gln Ile Ser Leu Ser Val
1330 1335 1340
Ser Tyr Thr Gly Ser Arg Ser Ala Ser Asn Met Ala Ile Val Asp Val
345 1350 1355 1360
Lys Met Val Ser Gly *Phe Ile Pro Leu* **Lys** *Pro Thr Val* **Lys** *Met Leu*
1365 1370 1375
Glu Arg Ser Asn His Val Ser Arg Thr Glu Val Ser Ser Asn His Val
1380 1385 1390
Leu Ile Tyr Leu Asp Lys Val Ser Asn Gln Thr Leu Ser Leu Phe Phe
Thr Val Leu Gln Asp Val Pro Val Arg Asp Leu Lys Pro Ala Ile Val
1410 1415 1420
Lys Val Tyr Asp Tyr Tyr Glu Thr Asp Glu Phe Ala Ile Ala Glu Tyr
425 1430 1435 1440
Asn Ala Pro Cys Ser Lys Asp Leu Gly Asn Ala
1445 1450

FIG.13B-5

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CAGCGGTGCG AGCTCCAGGC CCATGCACTG AGGAGGCGGA AACAAGGGGA GCCCCCAGAG     60
CTCCATCAAG CCCCCTCCAA AGGCTCCCCT ACCCGGTCCA CGCCCCCCAC CCCCCCTCCC    120
CGCCTCCTCC CAATTGTGCA TTTTTGCAGC CGGAGGCGGC TCCGAGATGG GGCTGTGAGC    180
TTCGCCCGGG GAGGGGGAAA GAGCAGCGAG GAGTGAAGCG GGGGGGTGGG GTGAAGGGTT    240
TGGATTTCGG GGCAGGGGGC GCACCCCCGT CAGCAGGCCC TCCCCAAGGG GCTCGGAACT    300
CTACCTCTTC ACCCACGCCC CTGGTGCGCT TTGCCGAAGG AAAGAATAAG AACAGAGAAG    360
GAGGAGGGGG AAAGGAGGAA AAGGGGGACC CCCCAACTGG GGGGGGTGAA GGAGAGAAGT    420
AGCAGGACCA GAGGGGAAGG GGCTGCTGCT TGCATCAGCC CACACC ATG CTG ACC        475
                                                   Met Leu Thr
                                                    1

CCG CCG TTG CTC CTG CTG CTG CCC CTG CTC TCA GCT CTG GTC GCG GCG       523
Pro Pro Leu Leu Leu Leu Leu Pro Leu Leu Ser Ala Leu Val Ala Ala
 5                  10                  15

GCT ATC GAC GCC CCT AAG ACT TGC AGC CCC AAG CAG TTT GCC TGC AGA      571
Ala Ile Asp Ala Pro Lys Thr Cys Ser Pro Lys Gln Phe Ala Cys Arg
20                  25                  30                  35

GAT CAA ATA ACC TGT ATC TCA AAG GGC TGG CGG TGC GAC GGT GAG AGG      619
Asp Gln Ile Thr Cys Ile Ser Lys Gly Trp Arg Cys Asp Gly Glu Arg
                40                  45                  50

GAC TGC CCA GAC GGA TCT GAC GAG GCC CCT GAG ATT TGT CCA CAG AGT      667
Asp Cys Pro Asp Gly Ser Asp Glu Ala Pro Glu Ile Cys Pro Gln Ser
            55                  60                  65

AAG GCC CAG CGA TGC CAG CCA AAC GAG CAT AAC TGC CTG GGT ACT GAG      715
Lys Ala Gln Arg Cys Gln Pro Asn Glu His Asn Cys Leu Gly Thr Glu
        70                  75                  80

CTG TGT GTT CCC ATG TCC CGC CTC TGC AAT GGG GTC CAG GAC TGC ATG      763
Leu Cys Val Pro Met Ser Arg Leu Cys Asn Gly Val Gln Asp Cys Met
    85                  90                  95

GAC GGC TCA GAT GAG GGG CCC CAC TGC CGA GAG CTC CAA GGC AAC TGC      811
Asp Gly Ser Asp Glu Gly Pro His Cys Arg Glu Leu Gln Gly Asn Cys
100                 105                 110                 115

TCT CGC CTG GGC TGC CAG CAC CAT TGT GTC CCC ACA CTC GAT GGG CCC      859
Ser Arg Leu Gly Cys Gln His His Cys Val Pro Thr Leu Asp Gly Pro
                120                 125                 130
```

FIG.14A-1

907
ACC TGC TAC TGC AAC AGC AGC TTT CAG CTT CAG GCA GAT GGC AAG ACC
Thr Cys Tyr Cys Asn Ser Ser Phe Gln Leu Gln Ala Asp Gly Lys Thr
135 140 145

955
TGC AAA GAT TTT GAT GAG TGC TCA GTG TAC GGC ACC TGC AGC CAG CTA
Cys Lys Asp Phe Asp Glu Cys Ser Val Tyr Gly Thr Cys Ser Gln Leu
150 155 160

1003
TGC ACC AAC ACA GAC GGC TCC TTC ATA TGT GGC TGT GTT GAA GGA TAC
Cys Thr Asn Thr Asp Gly Ser Phe Ile Cys Gly Cys Val Glu Gly Tyr
165 170 175

1051
CTC CTG CAG CCG GAT AAC CGC TCC TGC AAG GCC AAG AAC GAG CCA GTA
Leu Leu Gln Pro Asp Asn Arg Ser Cys Lys Ala Lys Asn Glu Pro Val
180 185 190 195

1099
GAC CGG CCC CCT GTG CTG TTG ATA GCC AAC TCC CAG AAC ATC TTG GCC
Asp Arg Pro Pro Val Leu Leu Ile Ala Asn Ser Gln Asn Ile Leu Ala
200 205 210

1147
ACG TAC CTG AGT GGG GCC CAG GTG TCT ACC ATC ACA CCT ACG AGC ACG
Thr Tyr Leu Ser Gly Ala Gln Val Ser Thr Ile Thr Pro Thr Ser Thr
215 220 225

1195
CGG CAG ACC ACA GCC ATG GAC TTC AGC TAT GCC AAC GAG ACC GTA TGC
Arg Gln Thr Thr Ala Met Asp Phe Ser Tyr Ala Asn Glu Thr Val Cys
230 235 240

1243
TGG GTG CAT GTT GGG GAC AGT GCT GCT CAG ACG CAG CTC AAG TGT GCC
Trp Val His Val Gly Asp Ser Ala Ala Gln Thr Gln Leu Lys Cys Ala
245 250 255

1291
CGC ATG CCT GGC CTA AAG GGC TTC GTG GAT GAG CAC ACC ATC AAC ATC
Arg Met Pro Gly Leu Lys Gly Phe Val Asp Glu His Thr Ile Asn Ile
260 265 270 275

1339
TCC CTC AGT CTG CAC CAC GTG GAA CAG ATG GCC ATC GAC TGG CTG ACA
Ser Leu Ser Leu His His Val Glu Gln Met Ala Ile Asp Trp Leu Thr
280 285 290

1387
GGC AAC TTC TAC TTT GTG GAT GAC ATC GAT GAT AGG ATC TTT GTC TGC
Gly Asn Phe Tyr Phe Val Asp Asp Ile Asp Asp Arg Ile Phe Val Cys
295 300 305

FIG.14A-2

AAC AGA AAT GGG GAC ACA TGT GTC ACA TTG CTA GAC CTG GAA CTC TAC 1435
Asn Arg Asn Gly Asp Thr Cys Val Thr Leu Leu Asp Leu Glu Leu Tyr
310 315 320

AAC CCC AAG GGC ATT GCC CTG GAC CCT GCC ATG GGG AAG GTG TTT TTC 1483
Asn Pro Lys Gly Ile Ala Leu Asp Pro Ala Met Gly Lys Val Phe Phe
325 330 335

ACT GAC TAT GGG CAG ATC CCA AAG GTG GAA CGC TGT GAC ATG GAT GGG 1531
Thr Asp Tyr Gly Gln Ile Pro Lys Val Glu Arg Cys Asp Met Asp Gly
340 345 350 355

CAG AAC CGC ACC AAG CTC GTC GAC AGC AAG ATT GTG TTT CCT CAT GGC 1579
Gln Asn Arg Thr Lys Leu Val Asp Ser Lys Ile Val Phe Pro His Gly
360 365 370

ATC ACG CTG GAC CTG GTC AGC CGC CTT GTC TAC TGG GCA GAT GCC TAT 1627
Ile Thr Leu Asp Leu Val Ser Arg Leu Val Tyr Trp Ala Asp Ala Tyr
375 380 385

CTG GAC TAT ATT GAA GTG GTG GAC TAT GAG GGC AAG GGC CGC CAG ACC 1675
Leu Asp Tyr Ile Glu Val Val Asp Tyr Glu Gly Lys Gly Arg Gln Thr
390 395 400

ATC ATC CAG GGC ATC CTG ATT GAG CAC CTG TAC GGC CTG ACT GTG TTT 1723
Ile Ile Gln Gly Ile Leu Ile Glu His Leu Tyr Gly Leu Thr Val Phe
405 410 415

GAG AAT TAT CTC TAT GCC ACC AAC TCG GAC AAT GCC AAT GCC CAG CAG 1771
Glu Asn Tyr Leu Tyr Ala Thr Asn Ser Asp Asn Ala Asn Ala Gln Gln
420 425 430 435

AAG ACG AGT GTG ATC CGT GTG AAC CGC TTT AAC AGC ACC GAG TAC CAG 1819
Lys Thr Ser Val Ile Arg Val Asn Arg Phe Asn Ser Thr Glu Tyr Gln
440 445 450

GTT GTC ACC CGG GTG GAC AAG GGT GGT GCC CTC CAC ATC TAC CAC CAG 1867
Val Val Thr Arg Val Asp Lys Gly Gly Ala Leu His Ile Tyr His Gln
455 460 465

AGG CGT CAG CCC CGA GTG AGG AGC CAT GCC TGT GAA AAC GAC CAG TAT 1915
Arg Arg Gln Pro Arg Val Arg Ser His Ala Cys Glu Asn Asp Gln Tyr
470 475 480

FIG.14A-3

GGG AAG CCG GGT GGC TGC TCT GAC ATC TGC CTG CTG GCC AAC AGC CAC 1963
Gly Lys Pro Gly Gly Cys Ser Asp Ile Cys Leu Leu Ala Asn Ser His
485 490 495

AAG GCG CGG ACC TGC CGC TGC CGT TCC GGC TTC AGC CTG GGC AGT GAC 2011
Lys Ala Arg Thr Cys Arg Cys Arg Ser Gly Phe Ser Leu Gly Ser Asp
500 505 510 515

GGG AAG TCA TGC AAG AAG CCG GAG CAT GAG CTG TTC CTC GTG TAT GGC 2059
Gly Lys Ser Cys Lys Lys Pro Glu His Glu Leu Phe Leu Val Tyr Gly
520 525 530

AAG GGC CGG CCA GGC ATC ATC CGG GGC ATG GAT ATG GGG GCC AAG GTC 2107
Lys Gly Arg Pro Gly Ile Ile Arg Gly Met Asp Met Gly Ala Lys Val
535 540 545

CCG GAT GAG CAC ATG ATC CCC ATT GAA AAC CTC ATG AAC CCC CGA GCC 2155
Pro Asp Glu His Met Ile Pro Ile Glu Asn Leu Met Asn Pro Arg Ala
550 555 560

CTG GAC TTC CAC GCT GAG ACC GGC TTC ATC TAC TTT GCC GAC ACC ACC 2203
Leu Asp Phe His Ala Glu Thr Gly Phe Ile Tyr Phe Ala Asp Thr Thr
565 570 575

AGC TAC CTC ATT GGC CGC CAG AAG ATT GAT GGC ACT GAG CGG GAG ACC 2251
Ser Tyr Leu Ile Gly Arg Gln Lys Ile Asp Gly Thr Glu Arg Glu Thr
580 585 590 595

ATC CTG AAG GAC GGC ATC CAC AAT GTG GAG GGT GTG GCC GTG GAC TGG 2299
Ile Leu Lys Asp Gly Ile His Asn Val Glu Gly Val Ala Val Asp Trp
600 605 610

ATG GGA GAC AAT CTG TAC TGG ACG GAC GAT GGG CCC AAA AAG ACA ATC 2347
Met Gly Asp Asn Leu Tyr Trp Thr Asp Asp Gly Pro Lys Lys Thr Ile
615 620 625

AGC GTG GCC AGG CTG GAG AAA GCT GCT CAG ACC CGC AAG ACT TTA ATC 2395
Ser Val Ala Arg Leu Glu Lys Ala Ala Gln Thr Arg Lys Thr Leu Ile
630 635 640

GAG GGC AAA ATG ACA CAC CCC AGG GCT ATT GTG GTG GAT CCA CTC AAT 2443
Glu Gly Lys Met Thr His Pro Arg Ala Ile Val Val Asp Pro Leu Asn
645 650 655

FIG.14A-4

GGG TGG ATG TAC TGG ACA GAC TGG GAG GAG GAC CCC AAG GAC AGT CGG 2491
Gly Trp Met Tyr Trp Thr Asp Trp Glu Glu Asp Pro Lys Asp Ser Arg
660 665 670 675

CGT GGG CGG CTG GAG AGG GCG TGG ATG GAT GGC TCA CAC CGA GAC ATC 2539
Arg Gly Arg Leu Glu Arg Ala Trp Met Asp Gly Ser His Arg Asp Ile
680 685 690

TTT GTC ACC TCC AAG ACA GTG CTT TGG CCC AAT GGG CTA AGC CTG GAC 2587
Phe Val Thr Ser Lys Thr Val Leu Trp Pro Asn Gly Leu Ser Leu Asp
695 700 705

ATC CCG GCT GGG CGC CTC TAC TGG GTG GAT GCC TTC TAC GAC CGC ATC 2635
Ile Pro Ala Gly Arg Leu Tyr Trp Val Asp Ala Phe Tyr Asp Arg Ile
710 715 720

GAG ACG ATA CTG CTC AAT GGC ACA GAC CGG AAG ATT GTG TAT GAA GGT 2683
Glu Thr Ile Leu Leu Asn Gly Thr Asp Arg Lys Ile Val Tyr Glu Gly
725 730 735

CCT GAG CTG AAC CAC GCC TTT GGC CTG TGT CAC CAT GGC AAC TAC CTC 2731
Pro Glu Leu Asn His Ala Phe Gly Leu Cys His His Gly Asn Tyr Leu
740 745 750 755

TTC TGG ACT GAG TAT CGG AGT GGC AGT GTC TAC CGC TTG GAA CGG GGT 2779
Phe Trp Thr Glu Tyr Arg Ser Gly Ser Val Tyr Arg Leu Glu Arg Gly
760 765 770

GTA GGA GGC GCA CCC CCC ACT GTG ACC CTT CTG CGC AGT GAG CGG CCC 2827
Val Gly Gly Ala Pro Pro Thr Val Thr Leu Leu Arg Ser Glu Arg Pro
775 780 785

CCC ATC TTT GAG ATC CGA ATG TAT GAT GCC CAG CAG CAG CAA GTT GGC 2875
Pro Ile Phe Glu Ile Arg Met Tyr Asp Ala Gln Gln Gln Gln Val Gly
790 795 800

ACC AAC AAA TGC CGG GTG AAC AAT GGC GGC TGC AGC AGC CTG TGC TTG 2923
Thr Asn Lys Cys Arg Val Asn Asn Gly Gly Cys Ser Ser Leu Cys Leu
805 810 815

GCC ACC CCT GGG AGC CGC CAG TGC GCC TGT GCT GAG GAC CAG GTG TTG 2971
Ala Thr Pro Gly Ser Arg Gln Cys Ala Cys Ala Glu Asp Gln Val Leu
820 825 830 835

FIG.14A-5

GAC GCA GAC GGC GTC ACT TGC TTG GCG AAC CCA TCC TAC GTG CCT CCA 3019
Asp Ala Asp Gly Val Thr Cys Leu Ala Asn Pro Ser Tyr Val Pro Pro
840 845 850

CCC CAG TGC CAG CCA GGC GAG TTT GCC TGT GCC AAC AGC CGC TGC ATC 3067
Pro Gln Cys Gln Pro Gly Glu Phe Ala Cys Ala Asn Ser Arg Cys Ile
855 860 865

CAG GAG CGC TGG AAG TGT GAC GGA GAC AAC GAT TGC CTG GAC AAC AGT 3115
Gln Glu Arg Trp Lys Cys Asp Gly Asp Asn Asp Cys Leu Asp Asn Ser
870 875 880

GAT GAG GCC CCA GCC CTC TGC CAT CAG CAC ACC TGC CCC TCG GAC CGA 3163
Asp Glu Ala Pro Ala Leu Cys His Gln His Thr Cys Pro Ser Asp Arg
885 890 895

TTC AAG TGC GAG AAC AAC CGG TGC ATC CCC AAC CGC TGG CTC TGC GAC 3211
Phe Lys Cys Glu Asn Asn Arg Cys Ile Pro Asn Arg Trp Leu Cys Asp
900 905 910 915

GGG GAC AAT GAC TGT GGG AAC AGT GAA GAT GAG TCC AAT GCC ACT TGT 3259
Gly Asp Asn Asp Cys Gly Asn Ser Glu Asp Glu Ser Asn Ala Thr Cys
920 925 930

TCA GCC CGC ACC TGC CCC CCC AAC CAG TTC TCC TGT GCC AGT GGC CGC 3307
Ser Ala Arg Thr Cys Pro Pro Asn Gln Phe Ser Cys Ala Ser Gly Arg
935 940 945

TGC ATC CCC ATC TCC TGG ACG TGT GAT CTG GAT GAC GAC TGT GGG GAC 3355
Cys Ile Pro Ile Ser Trp Thr Cys Asp Leu Asp Asp Asp Cys Gly Asp
950 955 960

CGC TCT GAT GAG TCT GCT TCG TGT GCC TAT CCC ACC TGC TTC CCC CTG 3403
Arg Ser Asp Glu Ser Ala Ser Cys Ala Tyr Pro Thr Cys Phe Pro Leu
965 970 975

ACT CAG TTT ACC TGC AAC AAT GGC AGA TGT ATC AAC ATC AAC TGG AGA 3451
Thr Gln Phe Thr Cys Asn Asn Gly Arg Cys Ile Asn Ile Asn Trp Arg
980 985 990 995

TGC GAC AAT GAC AAT GAC TGT GGG GAC AAC AGT GAC GAA GCC GGC TGC 3499
Cys Asp Asn Asp Asn Asp Cys Gly Asp Asn Ser Asp Glu Ala Gly Cys
1000 1005 1010

FIG.14A-6

```
AGC CAC TCC TGT TCT AGC ACC CAG TTC AAG TGC AAC AGC GGG CGT TGC      3547
Ser His Ser Cys Ser Ser Thr Gln Phe Lys Cys Asn Ser Gly Arg Cys
          1015                1020                1025

ATC CCC GAG CAC TGG ACC TGC GAT GGG GAC AAT GAC TGC GGA GAC TAC      3595
Ile Pro Glu His Trp Thr Cys Asp Gly Asp Asn Asp Cys Gly Asp Tyr
      1030                1035                1040

AGT GAT GAG ACA CAC GCC AAC TGC ACC AAC CAG GCC ACG AGG CCC CCT      3643
Ser Asp Glu Thr His Ala Asn Cys Thr Asn Gln Ala Thr Arg Pro Pro
  1045                1050                1055

GGT GGC TGC CAC ACT GAT GAG TTC CAG TGC CGG CTG GAT GGA CTA TGC      3691
Gly Gly Cys His Thr Asp Glu Phe Gln Cys Arg Leu Asp Gly Leu Cys
1060                1065                1070                1075

ATC CCC CTG CGG TGG CGC TGC GAT GGG GAC ACT GAC TGC ATG GAC TCC      3739
Ile Pro Leu Arg Trp Arg Cys Asp Gly Asp Thr Asp Cys Met Asp Ser
                1080                1085                1090

AGC GAT GAG AAG AGC TGT GAG GGA GTG ACC CAC GTC TGC GAT CCC AGT      3787
Ser Asp Glu Lys Ser Cys Glu Gly Val Thr His Val Cys Asp Pro Ser
          1095                1100                1105

GTC AAG TTT GGC TGC AAG GAC TCA GCT CGG TGC ATC AGC AAA GCG TGG      3835
Val Lys Phe Gly Cys Lys Asp Ser Ala Arg Cys Ile Ser Lys Ala Trp
      1110                1115                1120

GTG TGT GAT GGC GAC AAT GAC TGT GAG GAT AAC TCG GAC GAG GAG AAC      3883
Val Cys Asp Gly Asp Asn Asp Cys Glu Asp Asn Ser Asp Glu Glu Asn
  1125                1130                1135

TGC GAG TCC CTG GCC TGC AGG CCA CCC TCG CAC CCT TGT GCC AAC AAC      3931
Cys Glu Ser Leu Ala Cys Arg Pro Pro Ser His Pro Cys Ala Asn Asn
1140                1145                1150                1155

ACC TCA GTC TGC CTG CCC CCT GAC AAG CTG TGT GAT GGC AAC GAC GAC      3979
Thr Ser Val Cys Leu Pro Pro Asp Lys Leu Cys Asp Gly Asn Asp Asp
                1160                1165                1170

TGT GGC GAC GGC TCA GAT GAG GGC GAG CTC TGC GAC CAG TGC TCT CTG      4027
Cys Gly Asp Gly Ser Asp Glu Gly Glu Leu Cys Asp Gln Cys Ser Leu
          1175                1180                1185
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FIG.14A-7

```
AAT AAC GGT GGC TGC AGC CAC AAC TGC TCA GTG GCA CCT GGC GAA GGC      4075
Asn Asn Gly Gly Cys Ser His Asn Cys Ser Val Ala Pro Gly Glu Gly
      1190                1195                1200

ATT GTG TGT TCC TGC CCT CTG GGC ATG GAG CTG GGG CCC GAC AAC CAC      4123
Ile Val Cys Ser Cys Pro Leu Gly Met Glu Leu Gly Pro Asp Asn His
  1205                1210                1215

ACC TGC CAG ATC CAG AGC TAC TGT GCC AAG CAT CTC AAA TGC AGC CAA      4171
Thr Cys Gln Ile Gln Ser Tyr Cys Ala Lys His Leu Lys Cys Ser Gln
1220                1225                1230                1235

AAG TGC GAC CAG AAC AAG TTC AGC GTG AAG TGC TCC TGC TAC GAG GGC      4219
Lys Cys Asp Gln Asn Lys Phe Ser Val Lys Cys Ser Cys Tyr Glu Gly
                1240                1245                1250

TGG GTC CTG GAA CCT GAC GGC GAG AGC TGC CGC AGC CTG GAC CCC TTC      4267
Trp Val Leu Glu Pro Asp Gly Glu Ser Cys Arg Ser Leu Asp Pro Phe
          1255                1260                1265

AAG CCG TTC ATC ATT TTC TCC AAC CGC CAT GAA ATC CGG CGC ATC GAT      4315
Lys Pro Phe Ile Ile Phe Ser Asn Arg His Glu Ile Arg Arg Ile Asp
      1270                1275                1280

CTT CAC AAA GGA GAC TAC AGC GTC CTG GTG CCC GGC CTG CGC AAC ACC      4363
Leu His Lys Gly Asp Tyr Ser Val Leu Val Pro Gly Leu Arg Asn Thr
  1285                1290                1295

ATC GCC CTG GAC TTC CAC CTC AGC CAG AGC GCC CTC TAC TGG ACC GAC      4411
Ile Ala Leu Asp Phe His Leu Ser Gln Ser Ala Leu Tyr Trp Thr Asp
1300                1305                1310                1315

GTG GTG GAG GAC AAG ATC TAC CGC GGG AAG CTG CTG GAC AAC GGA GCC      4459
Val Val Glu Asp Lys Ile Tyr Arg Gly Lys Leu Leu Asp Asn Gly Ala
                1320                1325                1330

CTG ACT AGT TTC GAG GTG GTG ATT CAG TAT GGC CTG GCC ACA CCC GAG      4507
Leu Thr Ser Phe Glu Val Val Ile Gln Tyr Gly Leu Ala Thr Pro Glu
          1335                1340                1345

GGC CTG GCT GTA GAC TGG ATT GCA GGC AAC ATC TAC TGG GTG GAG AGT      4555
Gly Leu Ala Val Asp Trp Ile Ala Gly Asn Ile Tyr Trp Val Glu Ser
      1350                1355                1360
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FIG.14A-8

```
AAC CTG GAT CAG ATC GAG GTG GCC AAG CTG GAT GGG ACC CTC CGG ACC      4603
Asn Leu Asp Gln Ile Glu Val Ala Lys Leu Asp Gly Thr Leu Arg Thr
  1365                1370                1375

ACC CTG CTG GCC GGT GAC ATT GAG CAC CCA AGG GCA ATC GCA CTG GAT      4651
Thr Leu Leu Ala Gly Asp Ile Glu His Pro Arg Ala Ile Ala Leu Asp
1380                1385                1390                1395

CCC CGG GAT GGG ATC CTG TTT TGG ACA GAC TGG GAT GCC AGC CTG CCC      4699
Pro Arg Asp Gly Ile Leu Phe Trp Thr Asp Trp Asp Ala Ser Leu Pro
                1400                1405                1410

CGC ATT GAG GCA GCC TCC ATG AGT GGG GCT GGG CGC CGC ACC GTG CAC      4747
Arg Ile Glu Ala Ala Ser Met Ser Gly Ala Gly Arg Arg Thr Val His
          1415                1420                1425

CGG GAG ACC GGC TCT GGG GGC TGG CCC AAC GGG CTC ACC GTG GAC TAC      4795
Arg Glu Thr Gly Ser Gly Gly Trp Pro Asn Gly Leu Thr Val Asp Tyr
      1430                1435                1440

CTG GAG AAG CGC ATC CTT TGG ATT GAC GCC AGG TCA GAT GCC ATT TAC      4843
Leu Glu Lys Arg Ile Leu Trp Ile Asp Ala Arg Ser Asp Ala Ile Tyr
  1445                1450                1455

TCA GCC CGT TAC GAC GGC TCT GGC CAC ATG GAG GTG CTT CGG GGA CAC      4891
Ser Ala Arg Tyr Asp Gly Ser Gly His Met Glu Val Leu Arg Gly His
1460                1465                1470                1475

GAG TTC CTG TCG CAC CCG TTT GCA GTG ACG CTG TAC GGG GGG GAG GTC      4939
Glu Phe Leu Ser His Pro Phe Ala Val Thr Leu Tyr Gly Gly Glu Val
                1480                1485                1490

TAC TGG ACT GAC TGG CGA ACA AAC ACA CTG GCT AAG GCC AAC AAG TGG      4987
Tyr Trp Thr Asp Trp Arg Thr Asn Thr Leu Ala Lys Ala Asn Lys Trp
          1495                1500                1505

ACC GGC CAC AAT GTC ACC GTG GTA CAG AGG ACC AAC ACC CAG CCC TTT      5035
Thr Gly His Asn Val Thr Val Val Gln Arg Thr Asn Thr Gln Pro Phe
      1510                1515                1520

GAC CTG CAG GTG TAC CAC CCC TCC CGC CAG CCC ATG GCT CCC AAT CCC      5083
Asp Leu Gln Val Tyr His Pro Ser Arg Gln Pro Met Ala Pro Asn Pro
  1525                1530                1535
```

FIG.14A-9

TGT GAG GCC AAT GGG GGC CAG GGC CCC TGC TCC CAC CTG TGT CTC ATC 5131
Cys Glu Ala Asn Gly Gly Gln Gly Pro Cys Ser His Leu Cys Leu Ile
1540 1545 1550 1555

AAC TAC AAC CGG ACC GTG TCC TGC GCC TGC CCC CAC CTC ATG AAG CTC 5179
Asn Tyr Asn Arg Thr Val Ser Cys Ala Cys Pro His Leu Met Lys Leu
1560 1565 1570

CAC AAG GAC AAC ACC ACC TGC TAT GAG TTT AAG AAG TTC CTG CTG TAC 5227
His Lys Asp Asn Thr Thr Cys Tyr Glu Phe Lys Lys Phe Leu Leu Tyr
1575 1580 1585

GCA CGT CAG ATG GAG ATC CGA GGT GTG GAC CTG GAT GCT CCC TAC TAC 5275
Ala Arg Gln Met Glu Ile Arg Gly Val Asp Leu Asp Ala Pro Tyr Tyr
1590 1595 1600

AAC TAC ATC ATC TCC TTC ACG GTG CCC GAC ATC GAC AAC GTC ACA GTG 5323
Asn Tyr Ile Ile Ser Phe Thr Val Pro Asp Ile Asp Asn Val Thr Val
1605 1610 1615

CTA GAC TAC GAT GCC CGC GAG CAG CGT GTG TAC TGG TCT GAC GTG CGG 5371
Leu Asp Tyr Asp Ala Arg Glu Gln Arg Val Tyr Trp Ser Asp Val Arg
1620 1625 1630 1635

ACA CAG GCC ATC AAG CGG GCC TTC ATC AAC GGC ACA GGC GTG GAG ACA 5419
Thr Gln Ala Ile Lys Arg Ala Phe Ile Asn Gly Thr Gly Val Glu Thr
1640 1645 1650

GTC GTC TCT GCA GAC TTG CCA AAT GCC CAC GGG CTG GCT GTG GAC TGG 5467
Val Val Ser Ala Asp Leu Pro Asn Ala His Gly Leu Ala Val Asp Trp
1655 1660 1665

GTC TCC CGA AAC CTG TTC TGG ACA AGC TAT GAC ACC AAT AAG AAG CAG 5515
Val Ser Arg Asn Leu Phe Trp Thr Ser Tyr Asp Thr Asn Lys Lys Gln
1670 1675 1680

ATC AAT GTG GCC CGG CTG GAT GGC TCC TTC AAG AAC GCA GTG GTG CAG 5563
Ile Asn Val Ala Arg Leu Asp Gly Ser Phe Lys Asn Ala Val Val Gln
1685 1690 1695

GGC CTG GAG CAG CCC CAT GGC CTT GTC GTC CAC CCT CTG CGT GGG AAG 5611
Gly Leu Glu Gln Pro His Gly Leu Val Val His Pro Leu Arg Gly Lys
1700 1705 1710 1715

FIG.14A-10

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CTC TAC TGG ACC GAT GGT GAC AAC ATC AGC ATG GCC AAC ATG GAT GGC      5659
Leu Tyr Trp Thr Asp Gly Asp Asn Ile Ser Met Ala Asn Met Asp Gly
            1720                1725                1730

AGC AAT CGC ACC CTG CTC TTC AGT GGC CAG AAG GGC CCC GTG GGC CTG      5707
Ser Asn Arg Thr Leu Leu Phe Ser Gly Gln Lys Gly Pro Val Gly Leu
        1735                1740                1745

GCT ATT GAC TTC CCT GAA AGC AAA CTC TAC TGG ATC AGC TCC GGG AAC      5755
Ala Ile Asp Phe Pro Glu Ser Lys Leu Tyr Trp Ile Ser Ser Gly Asn
    1750                1755                1760

CAT ACC ATC AAC CGC TGC AAC CTG GAT GGG AGT GGG CTG GAG GTC ATC      5803
His Thr Ile Asn Arg Cys Asn Leu Asp Gly Ser Gly Leu Glu Val Ile
1765                1770                1775

GAT GCC ATG CGG AGC CAG CTG GGC AAG GCC ACC GCC CTG GCC ATC ATG      5851
Asp Ala Met Arg Ser Gln Leu Gly Lys Ala Thr Ala Leu Ala Ile Met
1780                1785                1790                1795

GGG GAC AAG CTG TGG TGG GCT GAT CAG GTG TCG GAA AAG ATG GGC ACA      5899
Gly Asp Lys Leu Trp Trp Ala Asp Gln Val Ser Glu Lys Met Gly Thr
            1800                1805                1810

TGC AGC AAG GCT GAC GGC TCG GGC TCC GTG GTC CTT CGG AAC AGC ACC      5947
Cys Ser Lys Ala Asp Gly Ser Gly Ser Val Val Leu Arg Asn Ser Thr
        1815                1820                1825

ACC CTG GTG ATG CAC ATG AAG GTC TAT GAC GAG AGC ATC CAG CTG GAC      5995
Thr Leu Val Met His Met Lys Val Tyr Asp Glu Ser Ile Gln Leu Asp
    1830                1835                1840

CAT AAG GGC ACC AAC CCC TGC AGT GTC AAC AAC GGT GAC TGC TCC CAG      6043
His Lys Gly Thr Asn Pro Cys Ser Val Asn Asn Gly Asp Cys Ser Gln
1845                1850                1855

CTC TGC CTG CCC ACG TCA GAG ACG ACC CGC TCC TGC ATG TGC ACA GCC      6091
Leu Cys Leu Pro Thr Ser Glu Thr Thr Arg Ser Cys Met Cys Thr Ala
1860                1865                1870                1875

GGC TAT AGC CTC CGG AGT GGC CAG CAG GCC TGC GAG GGC GTA GGT TCC      6139
Gly Tyr Ser Leu Arg Ser Gly Gln Gln Ala Cys Glu Gly Val Gly Ser
            1880                1885                1890
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FIG.14A-11

```
TTT CTC CTG TAC TCT GTG CAT GAG GGA ATC AGG GGA ATT CCC CTG GAT   6187
Phe Leu Leu Tyr Ser Val His Glu Gly Ile Arg Gly Ile Pro Leu Asp
        1895                1900                1905

CCC AAT GAC AAG TCA GAT GCC CTG GTC CCA GTG TCC GGG ACC TCG CTG   6235
Pro Asn Asp Lys Ser Asp Ala Leu Val Pro Val Ser Gly Thr Ser Leu
    1910                1915                1920

GCT GTC GGC ATC GAC TTC CAC GCT GAA AAT GAC ACC ATC TAC TGG GTG   6283
Ala Val Gly Ile Asp Phe His Ala Glu Asn Asp Thr Ile Tyr Trp Val
1925                1930                1935

GAC ATG GGC CTG AGC ACG ATC AGC CGG GCC AAG CGG GAC CAG ACG TGG   6331
Asp Met Gly Leu Ser Thr Ile Ser Arg Ala Lys Arg Asp Gln Thr Trp
1940                1945                1950                1955

CGT GAA GAC GTG GTG ACC AAT GGC ATT GGC CGT GTG GAG GGC ATT GCA   6379
Arg Glu Asp Val Val Thr Asn Gly Ile Gly Arg Val Glu Gly Ile Ala
                1960                1965                1970

GTG GAC TGG ATC GCA GGC AAC ATC TAC TGG ACA GAC CAG GGC TTT GAT   6427
Val Asp Trp Ile Ala Gly Asn Ile Tyr Trp Thr Asp Gln Gly Phe Asp
        1975                1980                1985

GTC ATC GAG GTC GCC CGG CTC AAT GGC TCC TTC CGC TAC GTG GTG ATC   6475
Val Ile Glu Val Ala Arg Leu Asn Gly Ser Phe Arg Tyr Val Val Ile
    1990                1995                2000

TCC CAG GGT CTA GAC AAG CCC CGG GCC ATC ACC GTC CAC CCG GAG AAA   6523
Ser Gln Gly Leu Asp Lys Pro Arg Ala Ile Thr Val His Pro Glu Lys
2005                2010                2015

GGG TAC TTG TTC TGG ACT GAG TGG GGT CAG TAT CCG CGT ATT GAG CGG   6571
Gly Tyr Leu Phe Trp Thr Glu Trp Gly Gln Tyr Pro Arg Ile Glu Arg
2020                2025                2030                2035

TCT CGG CTA GAT GGC ACG GAG CGT GTG GTG CTG GTC AAC GTC AGC ATC   6619
Ser Arg Leu Asp Gly Thr Glu Arg Val Val Leu Val Asn Val Ser Ile
                2040                2045                2050

AGC TGG CCC AAC GGC ATC TCA GTG GAC TAC CAG GAT GGG AAG CTG TAC   6667
Ser Trp Pro Asn Gly Ile Ser Val Asp Tyr Gln Asp Gly Lys Leu Tyr
        2055                2060                2065
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FIG.14A-12

TGG TGC GAT GCA CGG ACA GAC AAG ATT GAA CGG ATC GAC CTG GAG ACA 6715
Trp Cys Asp Ala Arg Thr Asp Lys Ile Glu Arg Ile Asp Leu Glu Thr
2070 2075 2080

GGT GAG AAC CGC GAG GTG GTT CTG TCC AGC AAC AAC ATG GAC ATG TTT 6763
Gly Glu Asn Arg Glu Val Val Leu Ser Ser Asn Asn Met Asp Met Phe
2085 2090 2095

TCA GTG TCT GTG TTT GAG GAT TTC ATC TAC TGG AGT GAC AGG ACT CAT 6811
Ser Val Ser Val Phe Glu Asp Phe Ile Tyr Trp Ser Asp Arg Thr His
2100 2105 2110 2115

GCC AAC GGC TCT ATC AAG CGC GGG AGC AAA GAC AAT GCC ACA GAC TCC 6859
Ala Asn Gly Ser Ile Lys Arg Gly Ser Lys Asp Asn Ala Thr Asp Ser
2120 2125 2130

GTG CCC CTG CGA ACC GGC ATC GGC GTC CAG CTT AAA GAC ATC AAA GTC 6907
Val Pro Leu Arg Thr Gly Ile Gly Val Gln Leu Lys Asp Ile Lys Val
2135 2140 2145

TTC AAC CGG GAC CGG CAG AAA GGC ACC AAC GTG TGC GCG GTG GCC AAT 6955
Phe Asn Arg Asp Arg Gln Lys Gly Thr Asn Val Cys Ala Val Ala Asn
2150 2155 2160

GGC GGG TGC CAG CAG CTG TGC CTG TAC CGG GGC CGT GGG CAG CGG GCC 7003
Gly Gly Cys Gln Gln Leu Cys Leu Tyr Arg Gly Arg Gly Gln Arg Ala
2165 2170 2175

TGC GCC TGT GCC CAC GGG ATG CTG GCT GAA GAC GGA GCA TCG TGC CGC 7051
Cys Ala Cys Ala His Gly Met Leu Ala Glu Asp Gly Ala Ser Cys Arg
2180 2185 2190 2195

GAG TAT GCC GGC TAC CTG CTC TAC TCA GAG CGC ACC ATT CTC AAG AGT 7099
Glu Tyr Ala Gly Tyr Leu Leu Tyr Ser Glu Arg Thr Ile Leu Lys Ser
2200 2205 2210

ATC CAC CTG TCG GAT GAG CGC AAC CTC AAT GCG CCC GTG CAG CCC TTC 7147
Ile His Leu Ser Asp Glu Arg Asn Leu Asn Ala Pro Val Gln Pro Phe
2215 2220 2225

GAG GAC CCT GAG CAC ATG AAG AAC GTC ATC GCC CTG GCC TTT GAC TAC 7195
Glu Asp Pro Glu His Met Lys Asn Val Ile Ala Leu Ala Phe Asp Tyr
2230 2235 2240

FIG.14A-13

CGG GCA GGC ACC TCT CCG GGC ACC CCC AAT CGC ATC TTC TTC AGC GAC 7243
Arg Ala Gly Thr Ser Pro Gly Thr Pro Asn Arg Ile Phe Phe Ser Asp
2245 2250 2255

ATC CAC TTT GGG AAC ATC CAA CAG ATC AAC GAC GAT GGC TCC AGG AGG 7291
Ile His Phe Gly Asn Ile Gln Gln Ile Asn Asp Asp Gly Ser Arg Arg
2260 2265 2270 2275

ATC ACC ATT GTG GAA AAC GTG GGC TCC GTG GAA GGC CTG GCC TAT CAC 7339
Ile Thr Ile Val Glu Asn Val Gly Ser Val Glu Gly Leu Ala Tyr His
2280 2285 2290

CGT GGC TGG GAC ACT CTC TAT TGG ACA AGC TAC ACG ACA TCC ACC ATC 7387
Arg Gly Trp Asp Thr Leu Tyr Trp Thr Ser Tyr Thr Thr Ser Thr Ile
2295 2300 2305

ACG CGC CAC ACA GTG GAC CAG ACC CGC CCA GGG GCC TTC GAG CGT GAG 7435
Thr Arg His Thr Val Asp Gln Thr Arg Pro Gly Ala Phe Glu Arg Glu
2310 2315 2320

ACC GTC ATC ACT ATG TCT GGA GAT GAC CAC CCA CGG GCC TTC GTT TTG 7483
Thr Val Ile Thr Met Ser Gly Asp Asp His Pro Arg Ala Phe Val Leu
2325 2330 2335

GAC GAG TGC CAG AAC CTC ATG TTC TGG ACC AAC TGG AAT GAG CAG CAT 7531
Asp Glu Cys Gln Asn Leu Met Phe Trp Thr Asn Trp Asn Glu Gln His
2340 2345 2350 2355

CCC AGC ATC ATG CGG GCG GCG CTC TCG GGA GCC AAT GTC CTG ACC CTT 7579
Pro Ser Ile Met Arg Ala Ala Leu Ser Gly Ala Asn Val Leu Thr Leu
2360 2365 2370

ATC GAG AAG GAC ATC CGT ACC CCC AAT GGC CTG GCC ATC GAC CAC CGT 7627
Ile Glu Lys Asp Ile Arg Thr Pro Asn Gly Leu Ala Ile Asp His Arg
2375 2380 2385

GCC GAG AAG CTC TAC TTC TCT GAC GCC ACC CTG GAC AAG ATC GAG CGG 7675
Ala Glu Lys Leu Tyr Phe Ser Asp Ala Thr Leu Asp Lys Ile Glu Arg
2390 2395 2400

TGC GAG TAT GAC GGC TCC CAC CGC TAT GTG ATC CTA AAG TCA GAG CCT 7723
Cys Glu Tyr Asp Gly Ser His Arg Tyr Val Ile Leu Lys Ser Glu Pro
2405 2410 2415

FIG.14A-14

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GTC CAC CCC TTC GGG CTG GCC GTG TAT GGG GAG CAC ATT TTC TGG ACT      7771
 Val His Pro Phe Gly Leu Ala Val Tyr Gly Glu His Ile Phe Trp Thr
2420                 2425                 2430                 2435

GAC TGG GTG CGG CGG GCA GTG CAG CGG GCC AAC AAG CAC GTG GGC AGC      7819
 Asp Trp Val Arg Arg Ala Val Gln Arg Ala Asn Lys His Val Gly Ser
                2440                 2445                 2450

AAC ATG AAG CTG CTG CGC GTG GAC ATC CCC CAG CAG CCC ATG GGC ATC      7867
 Asn Met Lys Leu Leu Arg Val Asp Ile Pro Gln Gln Pro Met Gly Ile
           2455                 2460                 2465

ATC GCC GTG GCC AAC GAC ACC AAC AGC TGT GAA CTC TCT CCA TGC CGA      7915
 Ile Ala Val Ala Asn Asp Thr Asn Ser Cys Glu Leu Ser Pro Cys Arg
      2470                 2475                 2480

ATC AAC AAC GGT GGC TGC CAG GAC CTG TGT CTG CTC ACT CAC CAG GGC      7963
 Ile Asn Asn Gly Gly Cys Gln Asp Leu Cys Leu Leu Thr His Gln Gly
 2485                 2490                 2495

CAT GTC AAC TGC TCA TGC CGA GGG GGC CGA ATC CTC CAG GAT GAC CTC      8011
 His Val Asn Cys Ser Cys Arg Gly Gly Arg Ile Leu Gln Asp Asp Leu
2500                 2505                 2510                 2515

ACC TGC CGA GCG GTG AAT TCC TCT TGC CGA GCA CAA GAT GAG TTT GAG      8059
 Thr Cys Arg Ala Val Asn Ser Ser Cys Arg Ala Gln Asp Glu Phe Glu
                2520                 2525                 2530

TGT GCC AAT GGC GAG TGC ATC AAC TTC AGC CTG ACC TGC GAC GGC GTC      8107
 Cys Ala Asn Gly Glu Cys Ile Asn Phe Ser Leu Thr Cys Asp Gly Val
           2535                 2540                 2545

CCC CAC TGC AAG GAC AAG TCC GAT GAG AAG CCA TCC TAC TGC AAC TCC      8155
 Pro His Cys Lys Asp Lys Ser Asp Glu Lys Pro Ser Tyr Cys Asn Ser
      2550                 2555                 2560

CGC CGC TGC AAG AAG ACT TTC CGG CAG TGC AGC AAT GGG CGC TGT GTG      8203
 Arg Arg Cys Lys Lys Thr Phe Arg Gln Cys Ser Asn Gly Arg Cys Val
 2565                 2570                 2575

TCC AAC ATG CTG TGG TGC AAC GGG GCC GAC GAC TGT GGG GAT GGC TCT      8251
 Ser Asn Met Leu Trp Cys Asn Gly Ala Asp Asp Cys Gly Asp Gly Ser
2580                 2585                 2590                 2595
```

FIG.14A-15

GAC GAG ATC CCT TGC AAC AAG ACA GCC TGT GGT GTG GGC GAG TTC CGC 8299
Asp Glu Ile Pro Cys Asn Lys Thr Ala Cys Gly Val Gly Glu Phe Arg
2600 2605 2610

TGC CGG GAC GGG ACC TGC ATC GGG AAC TCC AGC CGC TGC AAC CAG TTT 8347
Cys Arg Asp Gly Thr Cys Ile Gly Asn Ser Ser Arg Cys Asn Gln Phe
2615 2620 2625

GTG GAT TGT GAG GAC GCC TCA GAT GAG ATG AAC TGC AGT GCC ACC GAC 8395
Val Asp Cys Glu Asp Ala Ser Asp Glu Met Asn Cys Ser Ala Thr Asp
2630 2635 2640

TGC AGC AGC TAC TTC CGC CTG GGC GTG AAG GGC GTG CTC TTC CAG CCC 8443
Cys Ser Ser Tyr Phe Arg Leu Gly Val Lys Gly Val Leu Phe Gln Pro
2645 2650 2655

TGC GAG CGG ACC TCA CTC TGC TAC GCA CCC AGC TGG GTG TGT GAT GGC 8491
Cys Glu Arg Thr Ser Leu Cys Tyr Ala Pro Ser Trp Val Cys Asp Gly
2660 2665 2670 2675

GCC AAT GAC TGT GGG GAC TAC AGT GAT GAG CGC GAC TGC CCA GGT GTG 8539
Ala Asn Asp Cys Gly Asp Tyr Ser Asp Glu Arg Asp Cys Pro Gly Val
2680 2685 2690

AAA CGC CCC AGA TGC CCT CTG AAT TAC TTC GCC TGC CCT AGT GGG CGC 8587
Lys Arg Pro Arg Cys Pro Leu Asn Tyr Phe Ala Cys Pro Ser Gly Arg
2695 2700 2705

TGC ATC CCC ATG AGC TGG ACG TGT GAC AAA GAG GAT GAC TGT GAA CAT 8635
Cys Ile Pro Met Ser Trp Thr Cys Asp Lys Glu Asp Asp Cys Glu His
2710 2715 2720

GGC GAG GAC GAG ACC CAC TGC AAC AAG TTC TGC TCA GAG GCC CAG TTT 8683
Gly Glu Asp Glu Thr His Cys Asn Lys Phe Cys Ser Glu Ala Gln Phe
2725 2730 2735

GAG TGC CAG AAC CAT CGC TGC ATC TCC AAG CAG TGG CTG TGT GAC GGC 8731
Glu Cys Gln Asn His Arg Cys Ile Ser Lys Gln Trp Leu Cys Asp Gly
2740 2745 2750 2755

AGC GAT GAC TGT GGG GAT GGC TCA GAC GAG GCT GCT CAC TGT GAA GGC 8779
Ser Asp Asp Cys Gly Asp Gly Ser Asp Glu Ala Ala His Cys Glu Gly
2760 2765 2770

FIG.14A-16

AAG ACG TGC GGC CCC TCC TCC TTC TCC TGC CCT GGC ACC CAC GTG TGC 8827
Lys Thr Cys Gly Pro Ser Ser Phe Ser Cys Pro Gly Thr His Val Cys
2775 2780 2785

GTC CCC GAG CGC TGG CTC TGT GAC GGT GAC AAA GAC TGT GCT GAT GGT 8875
Val Pro Glu Arg Trp Leu Cys Asp Gly Asp Lys Asp Cys Ala Asp Gly
2790 2795 2800

GCA GAC GAG AGC ATC GCA GCT GGT TGC TTG TAC AAC AGC ACT TGT GAC 8923
Ala Asp Glu Ser Ile Ala Ala Gly Cys Leu Tyr Asn Ser Thr Cys Asp
2805 2810 2815

GAC CGT GAG TTC ATG TGC CAG AAC CGC CAG TGC ATC CCC AAG CAC TTC 8971
Asp Arg Glu Phe Met Cys Gln Asn Arg Gln Cys Ile Pro Lys His Phe
2820 2825 2830 2835

GTG TGT GAC CAC GAC CGT GAC TGT GCA GAT GGC TCT GAT GAG TCC CCC 9019
Val Cys Asp His Asp Arg Asp Cys Ala Asp Gly Ser Asp Glu Ser Pro
2840 2845 2850

GAG TGT GAG TAC CCG ACC TGC GGC CCC AGT GAG TTC CGC TGT GCC AAT 9067
Glu Cys Glu Tyr Pro Thr Cys Gly Pro Ser Glu Phe Arg Cys Ala Asn
2855 2860 2865

GGG CGC TGT CTG AGC TCC CGC CAG TGG GAG TGT GAT GGC GAG AAT GAC 9115
Gly Arg Cys Leu Ser Ser Arg Gln Trp Glu Cys Asp Gly Glu Asn Asp
2870 2875 2880

TGC CAC GAC CAG AGT GAC GAG GCT CCC AAG AAC CCA CAC TGC ACC AGC 9163
Cys His Asp Gln Ser Asp Glu Ala Pro Lys Asn Pro His Cys Thr Ser
2885 2890 2895

CCA GAG CAC AAG TGC AAT GCC TCG TCA CAG TTC CTG TGC AGC AGT GGG 9211
Pro Glu His Lys Cys Asn Ala Ser Ser Gln Phe Leu Cys Ser Ser Gly
2900 2905 2910 2915

CGC TGT GTG GCT GAG GCA CTG CTC TGC AAC GGC CAG GAT GAC TGT GGC 9259
Arg Cys Val Ala Glu Ala Leu Leu Cys Asn Gly Gln Asp Asp Cys Gly
2920 2925 2930

GAC AGC TCG GAC GAG CGT GGC TGC CAC ATC AAT GAG TGT CTC AGC CGC 9307
Asp Ser Ser Asp Glu Arg Gly Cys His Ile Asn Glu Cys Leu Ser Arg
2935 2940 2945

FIG.14A-17

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AAG CTC AGT GGC TGC AGC CAG GAC TGT GAG GAC CTC AAG ATC GGC TTC      9355
Lys Leu Ser Gly Cys Ser Gln Asp Cys Glu Asp Leu Lys Ile Gly Phe
      2950                2955                2960

AAG TGC CGC TGT CGC CCT GGC TTC CGG CTG AAG GAT GAC GGC CGG ACG      9403
Lys Cys Arg Cys Arg Pro Gly Phe Arg Leu Lys Asp Asp Gly Arg Thr
  2965                2970                2975

TGT GCT GAT GTG GAC GAG TGC AGC ACC ACC TTC CCC TGC AGC CAG CGC      9451
Cys Ala Asp Val Asp Glu Cys Ser Thr Thr Phe Pro Cys Ser Gln Arg
2980                2985                2990                2995

TGC ATC AAC ACC CAT GGC AGC TAT AAG TGT CTG TGT GTG GAG GGC TAT      9499
Cys Ile Asn Thr His Gly Ser Tyr Lys Cys Leu Cys Val Glu Gly Tyr
            3000                3005                3010

GCA CCC CGC GGC GGC GAC CCC CAC AGC TGC AAG GCT GTG ACT GAC GAG      9547
Ala Pro Arg Gly Gly Asp Pro His Ser Cys Lys Ala Val Thr Asp Glu
      3015                3020                3025

GAA CCG TTT CTG ATC TTC GCC AAC CGG TAC TAC CTG CGC AAG CTC AAC      9595
Glu Pro Phe Leu Ile Phe Ala Asn Arg Tyr Tyr Leu Arg Lys Leu Asn
      3030                3035                3040

CTG GAC GGG TCC AAC TAC ACG TTA CTT AAG CAG GGC CTG AAC AAC GCC      9643
Leu Asp Gly Ser Asn Tyr Thr Leu Leu Lys Gln Gly Leu Asn Asn Ala
  3045                3050                3055

GTT GCC TTG GAT TTT GAC TAC CGA GAG CAG ATG ATC TAC TGG ACA GAT      9691
Val Ala Leu Asp Phe Asp Tyr Arg Glu Gln Met Ile Tyr Trp Thr Asp
3060                3065                3070                3075

GTG ACC ACC CAG GGC AGC ATG ATC CGA AGG ATG CAC CTT AAC GGG AGC      9739
Val Thr Thr Gln Gly Ser Met Ile Arg Arg Met His Leu Asn Gly Ser
            3080                3085                3090

AAT GTG CAG GTC CTA CAC CGT ACA GGC CTC AGC AAC CCC GAT GGG CTG      9787
Asn Val Gln Val Leu His Arg Thr Gly Leu Ser Asn Pro Asp Gly Leu
      3095                3100                3105

GCT GTG GAC TGG GTG GGT GGC AAC CTG TAC TGG TGC GAC AAA GGC CGG      9835
Ala Val Asp Trp Val Gly Gly Asn Leu Tyr Trp Cys Asp Lys Gly Arg
      3110                3115                3120
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FIG.14A-18

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GAC ACC ATC GAG GTG TCC AAG CTC AAT GGG GCC TAT CGG ACG GTG CTG      9883
Asp Thr Ile Glu Val Ser Lys Leu Asn Gly Ala Tyr Arg Thr Val Leu
  3125                3130                3135

GTC AGC TCT GGC CTC CGT GAG CCC AGG GCT CTG GTG GTG GAT GTG CAG      9931
Val Ser Ser Gly Leu Arg Glu Pro Arg Ala Leu Val Val Asp Val Gln
3140                3145                3150                3155

AAT GGG TAC CTG TAC TGG ACA GAC TGG GGT GAC CAT TCA CTG ATC GGC      9979
Asn Gly Tyr Leu Tyr Trp Thr Asp Trp Gly Asp His Ser Leu Ile Gly
                3160                3165                3170

CGC ATC GGC ATG GAT GGG TCC AGC CGC AGC GTC ATC GTG GAC ACC AAG     10027
Arg Ile Gly Met Asp Gly Ser Ser Arg Ser Val Ile Val Asp Thr Lys
          3175                3180                3185

ATC ACA TGG CCC AAT GGC CTG ACG CTG GAC TAT GTC ACT GAG CGC ATC     10075
Ile Thr Trp Pro Asn Gly Leu Thr Leu Asp Tyr Val Thr Glu Arg Ile
     3190                3195                3200

TAC TGG GCC GAC GCC CGC GAG GAC TAC ATT GAA TTT GCC AGC CTG GAT     10123
Tyr Trp Ala Asp Ala Arg Glu Asp Tyr Ile Glu Phe Ala Ser Leu Asp
  3205                3210                3215

GGC TCC AAT CGC CAC GTT GTG CTG AGC CAG GAC ATC CCG CAC ATC TTT     10171
Gly Ser Asn Arg His Val Val Leu Ser Gln Asp Ile Pro His Ile Phe
3220                3225                3230                3235

GCA CTG ACC CTG TTT GAG GAC TAC GTC TAC TGG ACC GAC TGG GAA ACA     10219
Ala Leu Thr Leu Phe Glu Asp Tyr Val Tyr Trp Thr Asp Trp Glu Thr
                3240                3245                3250

AAG TCC ATT AAC CGA GCC CAC AAG ACC ACG GGC ACC AAC AAA ACG CTC     10267
Lys Ser Ile Asn Arg Ala His Lys Thr Thr Gly Thr Asn Lys Thr Leu
          3255                3260                3265

CTC ATC AGC ACG CTG CAC CGG CCC ATG GAC CTG CAT GTC TTC CAT GCC     10315
Leu Ile Ser Thr Leu His Arg Pro Met Asp Leu His Val Phe His Ala
     3270                3275                3280

CTG CGC CAG CCA GAC GTG CCC AAT CAC CCC TGC AAG GTC AAC AAT GGT     10363
Leu Arg Gln Pro Asp Val Pro Asn His Pro Cys Lys Val Asn Asn Gly
  3285                3290                3295
```

FIG.14A-19

GGC TGC AGC AAC CTG TGC CTG CTG TCC CCC GGG GGA GGG CAC AAA TGT 10411
Gly Cys Ser Asn Leu Cys Leu Leu Ser Pro Gly Gly Gly His Lys Cys
3300 3305 3310 3315

GCC TGC CCC ACC AAC TTC TAC CTG GGC AGC GAT GGG CGC ACC TGT GTG 10459
Ala Cys Pro Thr Asn Phe Tyr Leu Gly Ser Asp Gly Arg Thr Cys Val
3320 3325 3330

TCC AAC TGC ACG GCT AGC CAG TTT GTA TGC AAG AAC GAC AAG TGC ATC 10507
Ser Asn Cys Thr Ala Ser Gln Phe Val Cys Lys Asn Asp Lys Cys Ile
3335 3340 3345

CCC TTC TGG TGG AAG TGT GAC ACC GAG GAC GAC TGC GGG GAC CAC TCA 10555
Pro Phe Trp Trp Lys Cys Asp Thr Glu Asp Asp Cys Gly Asp His Ser
3350 3355 3360

GAC GAG CCC CCG GAC TGC CCT GAG TTC AAG TGC CGG CCC GGA CAG TTC 10603
Asp Glu Pro Pro Asp Cys Pro Glu Phe Lys Cys Arg Pro Gly Gln Phe
3365 3370 3375

CAG TGC TCC ACA GGT ATC TGC ACA AAC CCT GCC TTC ATC TGC GAT GGC 10651
Gln Cys Ser Thr Gly Ile Cys Thr Asn Pro Ala Phe Ile Cys Asp Gly
3380 3385 3390 3395

GAC AAT GAC TGC CAG GAC AAC AGT GAC GAG GCC AAC TGT GAC ATC CAC 10699
Asp Asn Asp Cys Gln Asp Asn Ser Asp Glu Ala Asn Cys Asp Ile His
3400 3405 3410

GTC TGC TTG CCC AGT CAG TTC AAA TGC ACC AAC ACC AAC CGC TGT ATT 10747
Val Cys Leu Pro Ser Gln Phe Lys Cys Thr Asn Thr Asn Arg Cys Ile
3415 3420 3425

CCC GGC ATC TTC CGC TGC AAT GGG CAG GAC AAC TGC GGA GAT GGG GAG 10795
Pro Gly Ile Phe Arg Cys Asn Gly Gln Asp Asn Cys Gly Asp Gly Glu
3430 3435 3440

GAT GAG AGG GAC TGC CCC GAG GTG ACC TGC GCC CCC AAC CAG TTC CAG 10843
Asp Glu Arg Asp Cys Pro Glu Val Thr Cys Ala Pro Asn Gln Phe Gln
3445 3450 3455

TGC TCC ATT ACC AAA CGG TGC ATC CCC CGG GTC TGG GTC TGC GAC CGG 10891
Cys Ser Ile Thr Lys Arg Cys Ile Pro Arg Val Trp Val Cys Asp Arg
3460 3465 3470 3475

FIG.14A-20

```
GAC AAT GAC TGT GTG GAT GGC AGT GAT GAG CCC GCC AAC TGC ACC CAG      10939
Asp Asn Asp Cys Val Asp Gly Ser Asp Glu Pro Ala Asn Cys Thr Gln
            3480                3485                3490

ATG ACC TGT GGT GTG GAC GAG TTC CGC TGC AAG GAT TCG GGC CGC TGC      10987
Met Thr Cys Gly Val Asp Glu Phe Arg Cys Lys Asp Ser Gly Arg Cys
        3495                3500                3505

ATC CCA GCG CGT TGG AAG TGT GAC GGA GAG GAT GAC TGT GGG GAT GGC      11035
Ile Pro Ala Arg Trp Lys Cys Asp Gly Glu Asp Asp Cys Gly Asp Gly
    3510                3515                3520

TCG GAT GAG CCC AAG GAA GAG TGT GAT GAA CGC ACC TGT GAG CCA TAC      11083
Ser Asp Glu Pro Lys Glu Glu Cys Asp Glu Arg Thr Cys Glu Pro Tyr
3525                3530                3535

CAG TTC CGC TGC AAG AAC AAC CGC TGC GTG CCC GGC CGC TGG CAG TGC      11131
Gln Phe Arg Cys Lys Asn Asn Arg Cys Val Pro Gly Arg Trp Gln Cys
3540                3545                3550                3555

GAC TAC GAC AAC GAT TGC GGT GAC AAC TCC GAT GAA GAG AGC TGC ACC      11179
Asp Tyr Asp Asn Asp Cys Gly Asp Asn Ser Asp Glu Glu Ser Cys Thr
            3560                3565                3570

CCT CGG CCC TGC TCC GAG AGT GAG TTC TCC TGT GCC AAC GGC CGC TGC      11227
Pro Arg Pro Cys Ser Glu Ser Glu Phe Ser Cys Ala Asn Gly Arg Cys
        3575                3580                3585

ATC GCG GGG CGC TGG AAA TGC GAT GGA GAC CAC GAC TGC GCG GAC GGC      11275
Ile Ala Gly Arg Trp Lys Cys Asp Gly Asp His Asp Cys Ala Asp Gly
    3590                3595                3600

TCG GAC GAG AAA GAC TGC ACC CCC CGC TGT GAC ATG GAC CAG TTC CAG      11323
Ser Asp Glu Lys Asp Cys Thr Pro Arg Cys Asp Met Asp Gln Phe Gln
3605                3610                3615

TGC AAG AGC GGC CAC TGC ATC CCC CTG CGC TGG CGC TGT GAC GCA GAC      11371
Cys Lys Ser Gly His Cys Ile Pro Leu Arg Trp Arg Cys Asp Ala Asp
3620                3625                3630                3635

GCC GAC TGC ATG GAC GGC AGC GAC GAG GAG GCC TGC GGC ACT GGC GTG      11419
Ala Asp Cys Met Asp Gly Ser Asp Glu Glu Ala Cys Gly Thr Gly Val
            3640                3645                3650
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FIG.14A-21

CGG ACC TGC CCC CTG GAC GAG TTC CAG TGC AAC AAC ACC TTG TGC AAG 11467
Arg Thr Cys Pro Leu Asp Glu Phe Gln Cys Asn Asn Thr Leu Cys Lys
3655 3660 3665

CCG CTG GCC TGG AAG TGC GAT GGC GAG GAT GAC TGT GGG GAC AAC TCA 11515
Pro Leu Ala Trp Lys Cys Asp Gly Glu Asp Asp Cys Gly Asp Asn Ser
3670 3675 3680

GAT GAG AAC CCC GAG GAG TGT GCC CGG TTC GTG TGC CCT CCC AAC CGG 11563
Asp Glu Asn Pro Glu Glu Cys Ala Arg Phe Val Cys Pro Pro Asn Arg
3685 3690 3695

CCC TTC CGT TGC AAG AAT GAC CGC GTC TGT CTG TGG ATC GGG CGC CAA 11611
Pro Phe Arg Cys Lys Asn Asp Arg Val Cys Leu Trp Ile Gly Arg Gln
3700 3705 3710 3715

TGC GAT GGC ACG GAC AAC TGT GGG GAT GGG ACT GAT GAA GAG GAC TGT 11659
Cys Asp Gly Thr Asp Asn Cys Gly Asp Gly Thr Asp Glu Glu Asp Cys
3720 3725 3730

GAG CCC CCC ACA GCC CAC ACC ACC CAC TGC AAA GAC AAG AAG GAG TTT 11707
Glu Pro Pro Thr Ala His Thr Thr His Cys Lys Asp Lys Lys Glu Phe
3735 3740 3745

CTG TGC CGG AAC CAG CGC TGC CTC TCC TCC TCC CTG CGC TGC AAC ATG 11755
Leu Cys Arg Asn Gln Arg Cys Leu Ser Ser Ser Leu Arg Cys Asn Met
3750 3755 3760

TTC GAT GAC TGC GGG GAC GGC TCT GAC GAG GAG GAC TGC AGC ATC GAC 11803
Phe Asp Asp Cys Gly Asp Gly Ser Asp Glu Glu Asp Cys Ser Ile Asp
3765 3770 3775

CCC AAG CTG ACC AGC TGC GCC ACC AAT GCC AGC ATC TGT GGG GAC GAG 11851
Pro Lys Leu Thr Ser Cys Ala Thr Asn Ala Ser Ile Cys Gly Asp Glu
3780 3785 3790 3795

GCA CGC TGC GTG CGC ACC GAG AAA GCG GCC TAC TGT GCC TGC CGC TCG 11899
Ala Arg Cys Val Arg Thr Glu Lys Ala Ala Tyr Cys Ala Cys Arg Ser
3800 3805 3810

GGC TTC CAC ACC GTG CCC GGC CAG CCC GGA TGC CAA GAC ATC AAC GAG 11947
Gly Phe His Thr Val Pro Gly Gln Pro Gly Cys Gln Asp Ile Asn Glu
3815 3820 3825

FIG.14A-22

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TGC CTG CGC TTC GGC ACC TGC TCC CAG CTC TGC AAC AAC ACC AAG GGC   11995
Cys Leu Arg Phe Gly Thr Cys Ser Gln Leu Cys Asn Asn Thr Lys Gly
      3830                3835                3840

GGC CAC CTC TGC AGC TGC GCT CGG AAC TTC ATG AAG ACG CAC AAC ACC   12043
Gly His Leu Cys Ser Cys Ala Arg Asn Phe Met Lys Thr His Asn Thr
   3845                3850                3855

TGC AAG GCC GAA GGC TCT GAG TAC CAG GTC CTG TAC ATC GCT GAT GAC   12091
Cys Lys Ala Glu Gly Ser Glu Tyr Gln Val Leu Tyr Ile Ala Asp Asp
3860                3865                3870                3875

AAT GAG ATC CGC AGC CTG TTC CCC GGC CAC CCC CAT TCG GCT TAC GAG   12139
Asn Glu Ile Arg Ser Leu Phe Pro Gly His Pro His Ser Ala Tyr Glu
                3880                3885                3890

CAG GCA TTC CAG GGT GAC GAG AGT GTC CGC ATT GAT GCT ATG GAT GTC   12187
Gln Ala Phe Gln Gly Asp Glu Ser Val Arg Ile Asp Ala Met Asp Val
          3895                3900                3905

CAT GTC AAG GCT GGC CGT GTC TAT TGG ACC AAC TGG CAC ACG GGC ACC   12235
His Val Lys Ala Gly Arg Val Tyr Trp Thr Asn Trp His Thr Gly Thr
      3910                3915                3920

ATC TCC TAC CGC AGC CTG CCA CCT GCT GCG CCT CCT ACC ACT TCC AAC   12283
Ile Ser Tyr Arg Ser Leu Pro Pro Ala Ala Pro Pro Thr Thr Ser Asn
   3925                3930                3935

CGC CAC CGG CGA CAG ATT GAC CGG GGT GTC ACC CAC CTC AAC ATT TCA   12331
Arg His Arg Arg Gln Ile Asp Arg Gly Val Thr His Leu Asn Ile Ser
3940                3945                3950                3955

GGG CTG AAG ATG CCC AGA GGC ATC GCC ATC GAC TGG GTG GCC GGA AAC   12379
Gly Leu Lys Met Pro Arg Gly Ile Ala Ile Asp Trp Val Ala Gly Asn
                3960                3965                3970

GTG TAC TGG ACC GAC TCG GGC CGA GAT GTG ATT GAG GTG GCG CAG ATG   12427
Val Tyr Trp Thr Asp Ser Gly Arg Asp Val Ile Glu Val Ala Gln Met
          3975                3980                3985

AAG GGC GAG AAC CGC AAG ACG CTC ATC TCG GGC ATG ATT GAC GAG CCC   12475
Lys Gly Glu Asn Arg Lys Thr Leu Ile Ser Gly Met Ile Asp Glu Pro
      3990                3995                4000
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FIG.14A-23

CAC GCC ATT GTG GTG GAC CCA CTG AGG GGG ACC ATG TAC TGG TCA GAC 12523
His Ala Ile Val Val Asp Pro Leu Arg Gly Thr Met Tyr Trp Ser Asp
4005 4010 4015

TGG GGC AAC CAC CCC AAG ATT GAG ACG GCA GCG ATG GAT GGG ACG CTT 12571
Trp Gly Asn His Pro Lys Ile Glu Thr Ala Ala Met Asp Gly Thr Leu
4020 4025 4030 4035

CGG GAG ACA CTG GTG CAG GAC AAC ATT CAG TGG CCC ACA GGC CTG GCC 12619
Arg Glu Thr Leu Val Gln Asp Asn Ile Gln Trp Pro Thr Gly Leu Ala
4040 4045 4050

GTG GAT TAT CAC AAT GAG CGG CTG TAC TGG GCA GAC GCC AAG CTT TCA 12667
Val Asp Tyr His Asn Glu Arg Leu Tyr Trp Ala Asp Ala Lys Leu Ser
4055 4060 4065

GTC ATC GGC AGC ATC CGG CTC AAT GGC ACG GAC CCC ATT GTG GCT GCT 12715
Val Ile Gly Ser Ile Arg Leu Asn Gly Thr Asp Pro Ile Val Ala Ala
4070 4075 4080

GAC AGC AAA CGA GGC CTA AGT CAC CCC TTC AGC ATC GAC GTC TTT GAG 12763
Asp Ser Lys Arg Gly Leu Ser His Pro Phe Ser Ile Asp Val Phe Glu
4085 4090 4095

GAT TAC ATC TAT GGT GTC ACC TAC ATC AAT AAT CGT GTC TTC AAG ATC 12811
Asp Tyr Ile Tyr Gly Val Thr Tyr Ile Asn Asn Arg Val Phe Lys Ile
4100 4105 4110 4115

CAT AAG TTT GGC CAC AGC CCC TTG GTC AAC CTG ACA GGG GGC CTG AGC 12859
His Lys Phe Gly His Ser Pro Leu Val Asn Leu Thr Gly Gly Leu Ser
4120 4125 4130

CAC GCC TCT GAC GTG GTC CTT TAC CAT CAG CAC AAG CAG CCC GAA GTG 12907
His Ala Ser Asp Val Val Leu Tyr His Gln His Lys Gln Pro Glu Val
4135 4140 4145

ACC AAC CCA TGT GAC CGC AAG AAA TGC GAG TGG CTC TGC CTG CTG AGC 12955
Thr Asn Pro Cys Asp Arg Lys Lys Cys Glu Trp Leu Cys Leu Leu Ser
4150 4155 4160

CCC AGT GGG CCT GTC TGC ACC TGT CCC AAT GGG AAG CGG CTG GAC AAC 13003
Pro Ser Gly Pro Val Cys Thr Cys Pro Asn Gly Lys Arg Leu Asp Asn
4165 4170 4175

FIG.14A-24

GGC ACA TGC GTG CCT GTG CCC TCT CCA ACG CCC CCC CCA GAT GCT CCC 13051
Gly Thr Cys Val Pro Val Pro Ser Pro Thr Pro Pro Pro Asp Ala Pro
4180 4185 4190 4195

CGG CCT GGA ACC TGT AAC CTG CAG TGC TTC AAC GGT GGC AGC TGT TTC 13099
Arg Pro Gly Thr Cys Asn Leu Gln Cys Phe Asn Gly Gly Ser Cys Phe
4200 4205 4210

CTC AAT GCA CGG AGG CAG CCC AAG TGC CGC TGC CAA CCC CGC TAC ACG 13147
Leu Asn Ala Arg Arg Gln Pro Lys Cys Arg Cys Gln Pro Arg Tyr Thr
4215 4220 4225

GGT GAC AAG TGT GAA CTG GAC CAG TGC TGG GAG CAC TGT CGC AAT GGG 13195
Gly Asp Lys Cys Glu Leu Asp Gln Cys Trp Glu His Cys Arg Asn Gly
4230 4235 4240

GGC ACC TGT GCT GCC TCC CCC TCT GGC ATG CCC ACG TGC CGG TGC CCC 13243
Gly Thr Cys Ala Ala Ser Pro Ser Gly Met Pro Thr Cys Arg Cys Pro
4245 4250 4255

ACG GGC TTC ACG GGC CCC AAA TGC ACC CAG CAG GTG TGT GCG GGC TAC 13291
Thr Gly Phe Thr Gly Pro Lys Cys Thr Gln Gln Val Cys Ala Gly Tyr
4260 4265 4270 4275

TGT GCC AAC AAC AGC ACC TGC ACT GTC AAC CAG GGC AAC CAG CCC CAG 13339
Cys Ala Asn Asn Ser Thr Cys Thr Val Asn Gln Gly Asn Gln Pro Gln
4280 4285 4290

TGC CGA TGC CTA CCC GGC TTC CTG GGC GAC CGC TGC CAG TAC CGG CAG 13387
Cys Arg Cys Leu Pro Gly Phe Leu Gly Asp Arg Cys Gln Tyr Arg Gln
4295 4300 4305

TGC TCT GGC TAC TGT GAG AAC TTT GGC ACA TGC CAG ATG GCT GCT GAT 13435
Cys Ser Gly Tyr Cys Glu Asn Phe Gly Thr Cys Gln Met Ala Ala Asp
4310 4315 4320

GGC TCC CGA CAA TGC CGC TGC ACT GCC TAC TTT GAG GGA TCG AGG TGT 13483
Gly Ser Arg Gln Cys Arg Cys Thr Ala Tyr Phe Glu Gly Ser Arg Cys
4325 4330 4335

GAG GTG AAC AAG TGC AGC CGC TGT CTC GAA GGG GCC TGT GTG GTC AAC 13531
Glu Val Asn Lys Cys Ser Arg Cys Leu Glu Gly Ala Cys Val Val Asn
4340 4345 4350 4355

FIG.14A-25

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AAG CAG AGT GGG GAT GTC ACC TGC AAC TGC ACG GAT GGC CGG GTG GCC   13579
Lys Gln Ser Gly Asp Val Thr Cys Asn Cys Thr Asp Gly Arg Val Ala
            4360                4365                4370

CCC AGC TGT CTG ACC TGC GTC GGC CAC TGC AGC AAT GGC GGC TCC TGT   13627
Pro Ser Cys Leu Thr Cys Val Gly His Cys Ser Asn Gly Gly Ser Cys
        4375                4380                4385

ACC ATG AAC AGC AAA ATG ATG CCT GAG TGC CAG TGC CCA CCC CAC ATG   13675
Thr Met Asn Ser Lys Met Met Pro Glu Cys Gln Cys Pro Pro His Met
    4390                4395                4400

ACA GGG CCC CGG TGT GAG GAG CAC GTC TTC AGC CAG CAG CAG CCA GGA   13723
Thr Gly Pro Arg Cys Glu Glu His Val Phe Ser Gln Gln Gln Pro Gly
4405                4410                4415

CAT ATA GCC TCC ATC CTA ATC CCT CTG CTG TTG CTG CTG CTG CTG GTT   13771
His Ile Ala Ser Ile Leu Ile Pro Leu Leu Leu Leu Leu Leu Leu Val
4420                4425                4430                4435

CTG GTG GCC GGA GTG GTA TTC TGG TAT AAG CGG CGA GTC CAA GGG GCT   13819
Leu Val Ala Gly Val Val Phe Trp Tyr Lys Arg Arg Val Gln Gly Ala
            4440                4445                4450

AAG GGC TTC CAG CAC CAA CGG ATG ACC AAC GGG GCC ATG AAC GTG GAG   13867
Lys Gly Phe Gln His Gln Arg Met Thr Asn Gly Ala Met Asn Val Glu
        4455                4460                4465

ATT GGA AAC CCC ACC TAC AAG ATG TAC GAA GGC GGA GAG CCT GAT GAT   13915
Ile Gly Asn Pro Thr Tyr Lys Met Tyr Glu Gly Gly Glu Pro Asp Asp
    4470                4475                4480

GTG GGA GGC CTA CTG GAC GCT GAC TTT GCC CTG GAC CCT GAC AAG CCC   13963
Val Gly Gly Leu Leu Asp Ala Asp Phe Ala Leu Asp Pro Asp Lys Pro
4485                4490                4495

ACC AAC TTC ACC AAC CCC GTG TAT GCC ACA CTC TAC ATG GGG GGC CAT   14011
Thr Asn Phe Thr Asn Pro Val Tyr Ala Thr Leu Tyr Met Gly Gly His
4500                4505                4510                4515

GGC AGT CGC CAC TCC CTG GCC AGC ACG GAC GAG AAG CGA GAA CTC CTG   14059
Gly Ser Arg His Ser Leu Ala Ser Thr Asp Glu Lys Arg Glu Leu Leu
            4520                4525                4530
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FIG.14A-26

GGC CGG GGC CCT GAG GAC GAG ATA GGG GAC CCC TTG GCA TAGGGCCCTG CC 14110
CCGTCGGACT GCCCCCAGAA AGCCTCCTGC CCCCTGCCGG TGAAGTCCTT CAGTGAGCCC 14170
Gly Arg Gly Pro Glu Asp Glu Ile Gly Asp Pro Leu Ala
4535 4540

CTCCCCAGCC AGCCCTTCCC TGGCCCCGCC GGATGTATAA ATGTAAAAAT GAAGGAATTA
14230
CATTTTATAT GTGAGCGAGC AAGCCGGCAA GCGAGCACAG TATTATTTCT CCATCCCCTC 14290
CCTGCCTGCT CCTTGGCACC CCCATGCTGC CTTCAGGGAG ACAGGCAGGG AGGGCTTGGG 14350
GCTGCACCTC CTACCCTCCC ACCAGAACGC ACCCCACTGG GAGAGCTGGT GGTGCAGCCT 14410
TCCCCTCCCT GTATAAGACA CTTTGCCAAG GCTCTCCCCT CTCGCCCCAT CCCTGCTTGC 14470
CCGCTCCCAC AGCTTCCTGA GGGCTAATTC TGGGAAGGGA GAGTTCTTTG CTGCCCCTGT 14530
CTGGAAGACG TGGCTCTGGG TGAGGTAGGC GGGAAAGGAT GGAGTGTTTT AGTTCTTGGG 14590
GGAGGCCACC CCAAACCCCA GCCCCAACTC CAGGGGCACC TATGAGATGG CCATGCTCAA 14650
CCCCCCTCCC AGACAGGCCC TCCCTGTCTC CAGGGCCCCC ACCGAGGTTC CCAGGGCTGG 14710
AGACTTCCTC TGGTAAACAT TCCTCCAGCC TCCCCTCCCC TGGGGACGCC AAGGAGGTGG 14770
GCCACACCCA GGAAGGGAAA GCGGGCAGCC CCGTTTTGGG GACGTGAACG TTTTAATAAT 14830
TTTTGCTGAA TTCTTTACAA CTAAATAACA CAGATATTCT TATAAATAAA ATTGTAAAAA 14890
AAAAAA 14896

FIG.14A-27

Met Leu Thr Pro Pro Leu Leu Leu Leu Leu Pro Leu Leu Ser Ala Leu
1 5 10 15
Val Ala Ala Ala Ile Asp Ala Pro Lys Thr Cys Ser Pro Lys Gln Phe
20 25 30
Ala Cys Arg Asp Gln Ile Thr Cys Ile Ser Lys Gly Trp Arg Cys Asp
35 40 45
Gly Glu Arg Asp Cys Pro Asp Gly Ser Asp Glu Ala Pro Glu Ile Cys
50 55 60
Pro Gln Ser Lys Ala Gln Arg Cys Gln Pro Asn Glu His Asn Cys Leu
65 70 75 80
Gly Thr Glu Leu Cys Val Pro Met Ser Arg Leu Cys Asn Gly Val Gln
85 90 95
Asp Cys Met Asp Gly Ser Asp Glu Gly Pro His Cys Arg Glu Leu Gln
100 105 110
Gly Asn Cys Ser Arg Leu Gly Cys Gln His His Cys Val Pro Thr Leu
115 120 125
Asp Gly Pro Thr Cys Tyr Cys Asn Ser Ser Phe Gln Leu Gln Ala Asp
130 135 140
Gly Lys Thr Cys Lys Asp Phe Asp Glu Cys Ser Val Tyr Gly Thr Cys
145 150 155 160
Ser Gln Leu Cys Thr Asn Thr Asp Gly Ser Phe Ile Cys Gly Cys Val
165 170 175
Glu Gly Tyr Leu Leu Gln Pro Asp Asn Arg Ser Cys Lys Ala Lys Asn
180 185 190
Glu Pro Val Asp Arg Pro Pro Val Leu Leu Ile Ala Asn Ser Gln Asn
195 200 205
Ile Leu Ala Thr Tyr Leu Ser Gly Ala Gln Val Ser Thr Ile Thr Pro
210 215 220
Thr Ser Thr Arg Gln Thr Thr Ala Met Asp Phe Ser Tyr Ala Asn Glu
225 230 235 240
Thr Val Cys Trp Val His Val Gly Asp Ser Ala Ala Gln Thr Gln Leu
245 250 255
Lys Cys Ala Arg Met Pro Gly Leu Lys Gly Phe Val Asp Glu His Thr
260 265 270
Ile Asn Ile Ser Leu Ser Leu His His Val Glu Gln Met Ala Ile Asp
275 280 285
Trp Leu Thr Gly Asn Phe Tyr Phe Val Asp Asp Ile Asp Asp Arg Ile
290 295 300
Phe Val Cys Asn Arg Asn Gly Asp Thr Cys Val Thr Leu Leu Asp Leu
305 310 315 320
Glu Leu Tyr Asn Pro Lys **Gly Ile Ala Leu Asp Pro Ala Met Gly Lys**
325 330 335
Val Phe Phe Thr Asp Tyr Gly Gln Ile Pro Lys Val Glu Arg Cys Asp
340 345 350
Met Asp Gly Gln Asn Arg Thr Lys Leu Val Asp Ser Lys Ile Val Phe
355 360 365
Pro His Gly Ile Thr Leu Asp Leu Val Ser Arg Leu Val Tyr Trp Ala
370 375 380
Asp Ala Tyr Leu Asp Tyr Ile Glu Val Val Asp Tyr Glu Gly Lys Gly
385 390 395 400
Arg Gln Thr Ile Ile Gln Gly Ile Leu Ile Glu His Leu Tyr Gly Leu
405 410 415

FIG.14B-1

Thr Val Phe Glu Asn Tyr Leu Tyr Ala Thr Asn Ser Asp Asn Ala Asn
420 425 430
Ala Gln Gln Lys Thr Ser Val Ile Arg Val Asn Arg Phe Asn Ser Thr
435 440 445
Glu Tyr Gln Val Val Thr Arg Val Asp Lys **Gly Gly Ala Leu His Ile**
450 455 460
Tyr His Gln Arg Arg Gln Pro Arg Val Arg Ser His Ala Cys Glu Asn
465 470 475 480
Asp Gln Tyr Gly Lys Pro Gly Gly Cys Ser Asp Ile Cys Leu Leu Ala
485 490 495
Asn Ser His Lys Ala Arg Thr Cys Arg Cys Arg **Ser Gly Phe Ser Leu**
500 505 510
Gly Ser Asp Gly Lys Ser Cys Lys Lys Pro Glu His Glu Leu Phe Leu
515 520 525
Val Tyr Gly Lys Gly Arg Pro Gly Ile Ile Arg Gly Met Asp Met Gly
530 535 540
Ala Lys Val Pro Asp Glu His Met Ile Pro Ile Glu Asn Leu Met Asn
545 550 555 560
Pro Arg Ala Leu Asp Phe His Ala Glu Thr Gly Phe Ile Tyr Phe Ala
565 570 575
Asp Thr Thr Ser Tyr Leu Ile Gly Arg Gln Lys Ile Asp Gly Thr Glu
580 585 590
Arg Glu Thr Ile Leu Lys Asp Gly Ile His Asn Val Glu Gly Val Ala
595 600 605
Val Asp Trp Met Gly Asp Asn Leu Tyr Trp Thr Asp Asp Gly Pro Lys
610 615 620
Lys Thr Ile Ser Val Ala Arg Leu Glu Lys Ala Ala Gln Thr Arg Lys
625 630 635 640
Thr Leu Ile Glu Gly Lys Met Thr His Pro Arg Ala Ile Val Val Asp
645 650 655
Pro Leu Asn Gly Trp Met Tyr Trp Thr Asp Trp Glu Glu Asp Pro Lys
660 665 670
Asp Ser Arg Arg Gly Arg Leu Glu Arg Ala Trp Met Asp Gly Ser His
675 680 685
Arg Asp Ile Phe Val Thr Ser Lys Thr Val Leu Trp Pro Asn Gly Leu
690 695 700
Ser Leu Asp Ile Pro Ala Gly Arg Leu Tyr Trp Val Asp Ala Phe Tyr
705 710 715 720
Asp Arg Ile Glu Thr Ile Leu Leu Asn Gly Thr Asp Arg Lys Ile Val
725 730 735
Tyr Glu Gly Pro Glu Leu Asn His Ala Phe Gly Leu Cys His His Gly
740 745 750
Asn Tyr Leu Phe Trp Thr Glu Tyr Arg Ser Gly Ser Val Tyr Arg Leu
755 760 765
Glu Arg Gly Val Gly Gly Ala Pro Pro Thr Val Thr Leu Leu Arg Ser
770 775 780
Glu Arg Pro Pro Ile Phe Glu Ile Arg Met Tyr Asp Ala Gln Gln Gln
785 790 795 800
Gln Val Gly Thr Asn Lys Cys Arg Val Asn Asn Gly Gly Cys Ser Ser
805 810 815
Leu Cys Leu Ala Thr Pro Gly Ser Arg Gln Cys Ala Cys Ala Glu Asp
820 825 830

FIG.14B-2

Gln Val Leu Asp Ala Asp Gly Val Thr Cys Leu Ala Asn Pro Ser Tyr
835 840 845

Val Pro Pro Pro Gln Cys Gln Pro Gly Glu Phe Ala Cys Ala Asn Ser
850 855 860

Arg Cys Ile Gln Glu Arg Trp Lys Cys Asp Gly Asp Asn Asp Cys Leu
865 870 875 880

Asp Asn Ser Asp Glu Ala Pro Ala Leu Cys His Gln His Thr Cys Pro
885 890 895

Ser Asp Arg Phe Lys Cys Glu Asn Asn Arg Cys Ile Pro Asn Arg Trp
900 905 910

Leu Cys Asp Gly Asp Asn Asp Cys Gly Asn Ser Glu Asp Glu Ser Asn
915 920 925

Ala Thr Cys Ser Ala Arg Thr Cys Pro Pro Asn Gln Phe Ser Cys Ala
930 935 940

Ser Gly Arg Cys Ile Pro Ile Ser Trp Thr Cys Asp Leu Asp Asp Asp
945 950 955 960

Cys Gly Asp Arg Ser Asp Glu Ser Ala Ser Cys Ala Tyr Pro Thr Cys
965 970 975

Phe Pro Leu Thr Gln Phe Thr Cys Asn Asn Gly Arg Cys Ile Asn Ile
980 985 990

Asn Trp Arg Cys Asp Asn Asp Asn Asp Cys Gly Asp Asn Ser Asp Glu
995 1000 1005

Arg Pro Pro Gly Gly Cys His Thr Asp Glu Phe Gln Cys Arg Leu Asp
1060 1065 1070

Gly Leu Cys Ile Pro Leu Arg Trp Arg Cys Asp Gly Asp Thr Asp Cys
1075 1080 1085

Met Asp Ser Ser Asp Glu Lys Ser Cys Glu Gly Val Thr His Val Cys
1090 1095 1100

Asp Pro Ser Val Lys Phe Gly Cys Lys Asp Ser Ala Arg Cys Ile Ser
105 1110 1115 1120

Lys Ala Trp Val Cys Asp Gly Asp Asn Asp Cys Glu Asp Asn Ser Asp
1125 1130 1135

Glu Glu Asn Cys Glu Ser Leu Ala Cys Arg Pro Pro Ser His Pro Cys
1140 1145 1150

Ala Asn Asn Thr Ser Val Cys Leu Pro Pro Asp Lys Leu Cys Asp Gly
1155 1160 1165

Asn Asp Asp Cys Gly Asp Gly Ser Asp Glu Gly Glu Leu Cys Asp Gln
1170 1175 1180

Cys Ser Leu Asn Asn Gly Gly Cys Ser His Asn Cys Ser Val Ala Pro
185 1190 1195 1200

Gly Glu Gly Ile Val Cys Ser Cys Pro Leu Gly Met Glu Leu Gly Pro
1205 1210 1215

Asp Asn His Thr Cys Gln Ile Gln Ser Tyr Cys Ala Lys His Leu Lys
1220 1225 1230

Cys Ser Gln Lys Cys Asp Gln Asn Lys Phe Ser Val Lys Cys Ser Cys
1235 1240 1245

Tyr Glu Gly Trp Val Leu Glu Pro Asp Gly Glu Ser Cys Arg Ser Leu
1250 1255 1260

Asp Pro Phe Lys Pro Phe Ile Ile Phe Ser Asn Arg His Glu Ile Arg
265 1270 1275 1280

Arg Ile Asp Leu His Lys Gly Asp Tyr Ser Val Leu Val Pro Gly Leu
1285 1290 1295

FIG.14B-3

Arg Asn Thr Ile Ala Leu Asp Phe His Leu Ser Gln Ser Ala Leu Tyr
1300 1305 1310
Trp Thr Asp Val Val Glu Asp Lys Ile Tyr Arg Gly Lys Leu Leu Asp
1315 1320 1325
Asn Gly Ala Leu Thr Ser Phe Glu Val Val Ile Gln Tyr Gly Leu Ala
1330 1335 1340
Thr Pro Glu Gly Leu Ala Val Asp Trp Ile Ala Gly Asn Ile Tyr Trp
345 1350 1355 1360
Val Glu Ser Asn Leu Asp Gln Ile Glu Val Ala Lys Leu Asp Gly Thr
1365 1370 1375
Leu Arg Thr Thr Leu Leu Ala Gly Asp Ile Glu His Pro Arg Ala Ile
1380 1385 1390
Ala Leu Asp Pro Arg Asp Gly Ile Leu Phe Trp Thr Asp Trp Asp Ala
1395 1400 1405
Ser Leu Pro Arg Ile Glu Ala Ala Ser Met Ser Gly Ala Gly Arg Arg
1410 1415 1420
Thr Val His Arg Glu Thr Gly Ser Gly Gly Trp Pro Asn Gly Leu Thr
425 1430 1435 1440
Val Asp Tyr Leu Glu Lys Arg Ile Leu Trp Ile Asp Ala Arg Ser Asp
1445 1450 1455
Ala Ile Tyr Ser Ala Arg Tyr Asp Gly Ser Gly His Met Glu Val Leu
1460 1465 1470
Arg Gly His Glu Phe Leu Ser His Pro Phe Ala Val Thr Leu Tyr Gly
1475 1480 1485
Gly Glu Val Tyr Trp Thr Asp Trp Arg Thr Asn Thr Leu Ala Lys Ala
1490 1495 1500
Asn Lys Trp Thr Gly His Asn Val Thr Val Val Gln Arg Thr Asn Thr
505 1510 1515 1520
Gln Pro Phe Asp Leu Gln Val Tyr His Pro Ser Arg Gln Pro Met Ala
1525 1530 1535
Pro Asn Pro Cys Glu Ala Asn Gly Gly Gln Gly Pro Cys Ser His Leu
1540 1545 1550
Cys Leu Ile Asn Tyr Asn Arg Thr Val Ser Cys Ala Cys Pro His Leu
1555 1560 1565
Met Lys Leu His Lys Asp Asn Thr Thr Cys Tyr Glu Phe Lys Lys Phe
1570 1575 1580
Leu Leu Tyr Ala Arg Gln Met Glu Ile Arg Gly Val Asp Leu Asp Ala
585 1590 1595 1600
Pro Tyr Tyr Asn Tyr Ile Ile Ser Phe Thr Val Pro Asp Ile Asp Asn
1605 1610 1615
Val Thr Val Leu Asp Tyr Asp Ala Arg Glu Gln Arg Val Tyr Trp Ser
1620 1625 1630
Asp Val Arg Thr Gln Ala Ile Lys Arg Ala Phe Ile Asn Gly Thr Gly
1635 1640 1645
Val Glu Thr Val Val Ser Ala Asp Leu Pro Asn Ala His Gly Leu Ala
1650 1655 1660
Val Asp Trp Val Ser Arg Asn Leu Phe Trp Thr Ser Tyr Asp Thr Asn
665 1670 1675 1680
Lys Lys Gln Ile Asn Val Ala Arg Leu Asp Gly Ser Phe Lys Asn Ala
1685 1690 1695
Val Val Gln Gly Leu Glu Gln Pro His Gly Leu Val Val His Pro Leu
1700 1705 1710

FIG.14B-4

Arg Gly Lys Leu Tyr Trp Thr Asp Gly Asp Asn Ile Ser Met Ala Asn
1715 1720 1725
Met Asp Gly Ser Asn Arg Thr Leu Leu Phe Ser Gly Gln Lys Gly Pro
1730 1735 1740
Val Gly Leu Ala Ile Asp Phe Pro Glu Ser Lys Leu Tyr Trp Ile Ser
745 1750 1755 1760
Ser Gly Asn His Thr Ile Asn Arg Cys Asn Leu Asp Gly Ser Gly Leu
1765 1770 1775
Glu Val Ile Asp Ala Met Arg Ser Gln Leu Gly Lys Ala Thr Ala Leu
1780 1785 1790
Ala Ile Met Gly Asp Lys Leu Trp Trp Ala Asp Gln Val Ser Glu Lys
1795 1800 1805
Met Gly Thr Cys Ser Lys Ala Asp Gly Ser Gly Ser Val Val Leu Arg
1810 1815 1820
Asn Ser Thr Thr Leu Val Met His Met Lys Val Tyr Asp Glu Ser Ile
825 1830 1835 1840
Gln Leu Asp His Lys Gly Thr Asn Pro Cys Ser Val Asn Asn Gly Asp
1845 1850 1855
Cys Ser Gln Leu Cys Leu Pro Thr Ser Glu Thr Thr Arg Ser Cys Met
1860 1865 1870
Cys Thr Ala Gly Tyr Ser Leu Arg Ser Gly Gln Gln Ala Cys Glu Gly
1875 1880 1885
Val Gly Ser Phe Leu Leu Tyr Ser Val His Glu Gly Ile Arg Gly Ile
1890 1895 1900
Pro Leu Asp Pro Asn Asp Lys Ser Asp Ala Leu Val Pro Val Ser Gly
905 1910 1915 1920
Thr Ser Leu Ala Val Gly Ile Asp Phe His Ala Glu Asn Asp Thr Ile
1925 1930 1935
Tyr Trp Val Asp Met Gly Leu Ser Thr Ile Ser Arg Ala Lys Arg Asp
1940 1945 1950
Gln Thr Trp Arg Glu Asp Val Val Thr Asn Gly Ile Gly Arg Val Glu
1955 1960 1965
Gly Ile Ala Val Asp Trp Ile Ala Gly Asn Ile Tyr Trp Thr Asp Gln
1970 1975 1980
Gly Phe Asp Val Ile Glu Val Ala Arg Leu Asn Gly Ser Phe Arg Tyr
985 1990 1995 2000
Val Val Ile Ser Gln Gly Leu Asp Lys Pro Arg Ala Ile Thr Val His
2005 2010 2015
Pro Glu Lys Gly Tyr Leu Phe Trp Thr Glu Trp Gly Gln Tyr Pro Arg
2020 2025 2030
Ile Glu Arg Ser Arg Leu Asp Gly Thr Glu Arg Val Val Leu Val Asn
2035 2040 2045
Val Ser Ile Ser Trp Pro Asn Gly Ile Ser Val Asp Tyr Gln Asp Gly
2050 2055 2060
Lys Leu Tyr Trp Cys Asp Ala Arg Thr Asp Lys Ile Glu Arg Ile Asp
065 2070 2075 2080
Leu Glu Thr Gly Glu Asn Arg Glu Val Val Leu Ser Ser Asn Asn Met
2085 2090 2095
Asp Met Phe Ser Val Ser Val Phe Glu Asp Phe Ile Tyr Trp Ser Asp
2100 2105 2110
Arg Thr His Ala Asn Gly Ser Ile Lys Arg Gly Ser Lys Asp Asn Ala
2115 2120 2125

FIG.14B-5

Thr Asp Ser Val Pro Leu Arg Thr Gly Ile Gly Val Gln Leu Lys Asp
2130 2135 2140
Ile Lys Val Phe Asn Arg Asp Arg Gln Lys Gly Thr Asn Val Cys Ala
145 2150 2155 2160
Val Ala Asn Gly Gly Cys Gln Gln Leu Cys Leu Tyr Arg Gly Arg Gly
2165 2170 2175
Gln Arg Ala Cys Ala Cys Ala His Gly Met Leu Ala Glu Asp Gly Ala
2180 2185 2190
Ser Cys Arg Glu Tyr Ala Gly Tyr Leu Leu Tyr Ser Glu Arg Thr Ile
2195 2200 2205
Leu Lys Ser Ile His Leu Ser Asp Glu Arg Asn Leu Asn Ala Pro Val
2210 2215 2220
Gln Pro Phe Glu Asp Pro Glu His Met Lys Asn Val Ile Ala Leu Ala
225 2230 2235 2240
Phe Asp Tyr Arg Ala Gly Thr Ser Pro Gly Thr Pro Asn Arg Ile Phe
2245 2250 2255
Phe Ser Asp Ile His Phe Gly Asn Ile Gln Gln Ile Asn Asp Asp Gly
2260 2265 2270
Ser Arg Arg Ile Thr Ile Val Glu Asn Val Gly Ser Val Glu Gly Leu
2275 2280 2285
Ala Tyr His Arg Gly Trp Asp Thr Leu Tyr Trp Thr Ser Tyr Thr Thr
2290 2295 2300
Ser Thr Ile Thr Arg His Thr Val Asp Gln Thr Arg Pro Gly Ala Phe
305 2310 2315 2320
Glu Arg Glu Thr Val Ile Thr Met Ser Gly Asp Asp His Pro Arg Ala
2325 2330 2335
Phe Val Leu Asp Glu Cys Gln Asn Leu Met Phe Trp Thr Asn Trp Asn
2340 2345 2350
Glu Gln His Pro Ser Ile Met Arg Ala Ala Leu Ser Gly Ala Asn Val
2355 2360 2365
Leu Thr Leu Ile Glu Lys Asp Ile Arg Thr Pro Asn Gly Leu Ala Ile
2370 2375 2380
Asp His Arg Ala Glu Lys Leu Tyr Phe Ser Asp Ala Thr Leu Asp Lys
385 2390 2395 2400
Ile Glu Arg Cys Glu Tyr Asp Gly Ser His Arg Tyr Val Ile Leu Lys
2405 2410 2415
Ser Glu Pro Val His Pro Phe Gly Leu Ala Val Tyr Gly Glu His Ile
2420 2425 2430
Phe Trp Thr Asp Trp Val Arg Arg Ala Val Gln Arg Ala Asn Lys His
2435 2440 2445
Val Gly Ser Asn Met Lys Leu Leu Arg Val Asp Ile Pro Gln Gln Pro
2450 2455 2460
Met Gly Ile Ile Ala Val Ala Asn Asp Thr Asn Ser Cys Glu Leu Ser
465 2470 2475 2480
Pro Cys Arg Ile Asn Asn Gly Gly Cys Gln Asp Leu Cys Leu Leu Thr
2485 2490 2495
His Gln Gly His Val Asn Cys Ser Cys Arg Gly Gly Arg Ile Leu Gln
2500 2505 2510
Asp Asp Leu Thr Cys Arg Ala Val Asn Ser Ser Cys Arg Ala Gln Asp
2515 2520 2525
Glu Phe Glu Cys Ala Asn Gly Glu Cys Ile Asn Phe Ser Leu Thr Cys
2530 2535 2540

FIG.14B-6

Asp Gly Val Pro His Cys Lys Asp Lys Ser Asp Glu Lys Pro Ser Tyr
545 2550 2555 2560
Cys Asn Ser Arg Arg Cys Lys Lys Thr Phe Arg Gln Cys Ser Asn Gly
2565 2570 2575
Arg Cys Val Ser Asn Met Leu Trp Cys Asn Gly Ala Asp Asp Cys Gly
2580 2585 2590
Asp Gly Ser Asp Glu Ile Pro Cys Asn Lys Thr Ala Cys Gly Val Gly
2595 2600 2605
Glu Phe Arg Cys Arg Asp Gly Thr Cys Ile Gly Asn Ser Ser Arg Cys
2610 2615 2620
Asn Gln Phe Val Asp Cys Glu Asp Ala Ser Asp Glu Met Asn Cys Ser
625 2630 2635 2640
Ala Thr Asp Cys Ser Ser Tyr Phe Arg Leu Gly Val Lys Gly Val Leu
2645 2650 2655
Phe Gln Pro Cys Glu Arg Thr Ser Leu Cys Tyr Ala Pro Ser Trp Val
2660 2665 2670
Cys Asp Gly Ala Asn Asp Cys Gly Asp Tyr Ser Asp Glu Arg Asp Cys
2675 2680 2685
Pro Gly Val Lys Arg Pro Arg Cys Pro Leu Asn Tyr Phe Ala Cys Pro
2690 2695 2700
Ser Gly Arg Cys Ile Pro Met Ser Trp Thr Cys Asp Lys Glu Asp Asp
705 2710 2715 2720
Cys Glu His Gly Glu Asp Glu Thr His Cys Asn Lys Phe Cys Ser Glu
2725 2730 2735
Ala Gln Phe Glu Cys Gln Asn His Arg Cys Ile Ser Lys Gln Trp Leu
2740 2745 2750
Cys Asp Gly Ser Asp Asp Cys Gly Asp Gly Ser Asp Glu Ala Ala His
2755 2760 2765
Cys Glu Gly Lys Thr Cys Gly Pro Ser Ser Phe Ser Cys Pro Gly Thr
2770 2775 2780
His Val Cys Val Pro Glu Arg Trp Leu Cys Asp Gly Asp Lys Asp Cys
785 2790 2795 2800
Ala Asp Gly Ala Asp Glu Ser Ile Ala Ala Gly Cys Leu Tyr Asn Ser
2805 2810 2815
Thr Cys Asp Asp Arg Glu Phe Met Cys Gln Asn Arg Gln Cys Ile Pro
2820 2825 2830
Lys His Phe Val Cys Asp His Asp Arg Asp Cys Ala Asp Gly Ser Asp
2835 2840 2845
Glu Ser Pro Glu Cys Glu Tyr Pro Thr Cys Gly Pro Ser Glu Phe Arg
2850 2855 2860
Cys Ala Asn Gly Arg Cys Leu Ser Ser Arg Gln Trp Glu Cys Asp Gly
865 2870 2875 2880
Glu Asn Asp Cys His Asp Gln Ser Asp Glu Ala Pro Lys Asn Pro His
2885 2890 2895
Cys Thr Ser Pro Glu His Lys Cys Asn Ala Ser Ser Gln Phe Leu Cys
2900 2905 2910
Ser Ser Gly Arg Cys Val Ala Glu Ala Leu Leu Cys Asn Gly Gln Asp
2915 2920 2925
Asp Cys Gly Asp Ser Ser Asp Glu Arg Gly Cys His Ile Asn Glu Cys
2930 2935 2940
Leu Ser Arg Lys Leu Ser Gly Cys Ser Gln Asp Cys Glu Asp Leu Lys
945 2950 2955 2960

FIG.14B-7

Ile Gly Phe Lys Cys Arg Cys Arg Pro Gly Phe Arg Leu Lys Asp Asp
2965 2970 2975
Gly Arg Thr Cys Ala Asp Val Asp Glu Cys Ser Thr Thr Phe Pro Cys
2980 2985 2990
Ser Gln Arg Cys Ile Asn Thr His Gly Ser Tyr Lys Cys Leu Cys Val
2995 3000 3005
Glu Gly Tyr Ala Pro Arg Gly Gly Asp Pro His Ser Cys Lys Ala Val
3010 3015 3020
Thr Asp Glu Glu Pro Phe Leu Ile Phe Ala Asn Arg Tyr Tyr Leu Arg
025 3030 3035 3040
Lys Leu Asn Leu Asp Gly Ser Asn Tyr Thr Leu Leu Lys Gln Gly Leu
3045 3050 3055
Asn Asn Ala Val Ala Leu Asp Phe Asp Tyr Arg Glu Gln Met Ile Tyr
3060 3065 3070
Trp Thr Asp Val Thr Thr Gln Gly Ser Met Ile Arg Arg Met His Leu
3075 3080 3085
Asn Gly Ser Asn Val Gln Val Leu His Arg Thr Gly Leu Ser Asn Pro
3090 3095 3100
Asp Gly Leu Ala Val Asp Trp Val Gly Gly Asn Leu Tyr Trp Cys Asp
105 3110 3115 3120
Lys Gly Arg Asp Thr Ile Glu Val Ser Lys Leu Asn Gly Ala Tyr Arg
3125 3130 3135
Thr Val Leu Val Ser Ser Gly Leu Arg Glu Pro Arg Ala Leu Val Val
3140 3145 3150
Asp Val Gln Asn Gly Tyr Leu Tyr Trp Thr Asp Trp Gly Asp His Ser
3155 3160 3165
Leu Ile Gly Arg Ile Gly Met Asp Gly Ser Ser Arg Ser Val Ile Val
3170 3175 3180
Asp Thr Lys Ile Thr Trp Pro Asn Gly Leu Thr Leu Asp Tyr Val Thr
185 3190 3195 3200
Glu Arg Ile Tyr Trp Ala Asp Ala Arg Glu Asp Tyr Ile Glu Phe Ala
3205 3210 3215
Ser Leu Asp Gly Ser Asn Arg His Val Val Leu Ser Gln Asp Ile Pro
3220 3225 3230
His Ile Phe Ala Leu Thr Leu Phe Glu Asp Tyr Val Tyr Trp Thr Asp
3235 3240 3245
Trp Glu Thr Lys Ser Ile Asn Arg Ala His Lys Thr Thr Gly Thr Asn
3250 3255 3260
Lys Thr Leu Leu Ile Ser Thr Leu His Arg Pro Met Asp Leu His Val
265 3270 3275 3280
Phe His Ala Leu Arg Gln Pro Asp Val Pro Asn His Pro Cys Lys Val
3285 3290 3295
Asn Asn Gly Gly Cys Ser Asn Leu Cys Leu Leu Ser Pro Gly Gly Gly
3300 3305 3310
His Lys Cys Ala Cys Pro Thr Asn Phe Tyr Leu Gly Ser Asp Gly Arg
3315 3320 3325
Thr Cys Val Ser Asn Cys Thr Ala Ser Gln Phe Val Cys Lys Asn Asp
3330 3335 3340
Lys Cys Ile Pro Phe Trp Trp Lys Cys Asp Thr Glu Asp Asp Cys Gly
345 3350 3355 3360
Asp His Ser Asp Glu Pro Pro Asp Cys Pro Glu Phe Lys Cys Arg Pro
3365 3370 3375

FIG.14B-8

Gly Gln Phe Gln Cys Ser Thr Gly Ile Cys Thr Asn Pro Ala Phe Ile
3380 3385 3390
Cys Asp Gly Asp Asn Asp Cys Gln Asp Asn Ser Asp Glu Ala Asn Cys
3395 3400 3405
Asp Ile His Val Cys Leu Pro Ser Gln Phe Lys Cys Thr Asn Thr Asn
3410 3415 3420
Arg Cys Ile Pro Gly Ile Phe Arg Cys Asn Gly Gln Asp Asn Cys Gly
425 3430 3435 3440
Asp Gly Glu Asp Glu Arg Asp Cys Pro Glu Val Thr Cys Ala Pro Asn
3445 3450 3455
Gln Phe Gln Cys Ser Ile Thr Lys Arg Cys Ile Pro Arg Val Trp Val
3460 3465 3470
Cys Asp Arg Asp Asn Asp Cys Val Asp Gly Ser Asp Glu Pro Ala Asn
3475 3480 3485
Cys Thr Gln Met Thr Cys Gly Val Asp Glu Phe Arg Cys Lys Asp Ser
3490 3495 3500
Gly Arg Cys Ile Pro Ala Arg Trp Lys Cys Asp Gly Glu Asp Asp Cys
505 3510 3515 3520
Gly Asp Gly Ser Asp Glu Pro Lys Glu Glu Cys Asp Glu Arg Thr Cys
3525 3530 3535
Glu Pro Tyr Gln Phe Arg Cys Lys Asn Asn Arg Cys Val Pro Gly Arg
3540 3545 3550
Trp Gln Cys Asp Tyr Asp Asn Asp Cys Gly Asp Asn Ser Asp Glu Glu
3555 3560 3565
Ser Cys Thr Pro Arg Pro Cys Ser Glu Ser Glu Phe Ser Cys Ala Asn
3570 3575 3580
Gly Arg Cys Ile Ala Gly Arg Trp Lys Cys Asp Gly Asp His Asp Cys
585 3590 3595 3600
Ala Asp Gly Ser Asp Glu Lys Asp Cys Thr Pro Arg Cys Asp Met Asp
3605 3610 3615
Gln Phe Gln Cys Lys Ser Gly His Cys Ile Pro Leu Arg Trp Arg Cys
3620 3625 3630
Asp Ala Asp Ala Asp Cys Met Asp Gly Ser Asp Glu Glu Ala Cys Gly
3635 3640 3645
Thr Gly Val Arg Thr Cys Pro Leu Asp Glu Phe Gln Cys Asn Asn Thr
3650 3655 3660
Leu Cys Lys Pro Leu Ala Trp Lys Cys Asp Gly Glu Asp Asp Cys Gly
665 3670 3675 3680
Asp Asn Ser Asp Glu Asn Pro Glu Glu Cys Ala Arg Phe Val Cys Pro
3685 3690 3695
Pro Asn Arg Pro Phe Arg Cys Lys Asn Asp Arg Val Cys Leu Trp Ile
3700 3705 3710
Gly Arg Gln Cys Asp Gly Thr Asp Asn Cys Gly Asp Gly Thr Asp Glu
3715 3720 3725
Glu Asp Cys Glu Pro Pro Thr Ala His Thr Thr His Cys Lys Asp Lys
3730 3735 3740
Lys Glu Phe Leu Cys Arg Asn Gln Arg Cys Leu Ser Ser Ser Leu Arg
745 3750 3755 3760
Cys Asn Met Phe Asp Asp Cys Gly Asp Gly Ser Asp Glu Glu Asp Cys
3765 3770 3775
Ser Ile Asp Pro Lys Leu Thr Ser Cys Ala Thr Asn Ala Ser Ile Cys
3780 3785 3790

FIG.14B-9

Gly Asp Glu Ala Arg Cys Val Arg Thr Glu Lys Ala Ala Tyr Cys Ala
3795 3800 3805
Cys Arg Ser Gly Phe His Thr Val Pro Gly Gln Pro Gly Cys Gln Asp
3810 3815 3820
Ile Asn Glu Cys Leu Arg Phe Gly Thr Cys Ser Gln Leu Cys Asn Asn
825 3830 3835 3840
Thr Lys Gly Gly His Leu Cys Ser Cys Ala Arg Asn Phe Met Lys Thr
3845 3850 3855
His Asn Thr Cys Lys Ala Glu Gly Ser Glu Tyr Gln Val Leu Tyr Ile
3860 3865 3870
Ala Asp Asp Asn Glu Ile Arg Ser Leu Phe Pro Gly His Pro His Ser
3875 3880 3885
Ala Tyr Glu Gln Ala Phe Gln Gly Asp Glu Ser Val Arg Ile Asp Ala
3890 3895 3900
Met Asp Val His Val Lys Ala Gly Arg Val Tyr Trp Thr Asn Trp His
905 3910 3915 3920
Thr Gly Thr Ile Ser Tyr Arg Ser Leu Pro Pro Ala Ala Pro Pro Thr
3925 3930 3935
Thr Ser Asn Arg His Arg Arg Gln Ile Asp Arg Gly Val Thr His Leu
3940 3945 3950
Asn Ile Ser Gly Leu Lys Met Pro Arg Gly Ile Ala Ile Asp Trp Val
3955 3960 3965
Ala Gly Asn Val Tyr Trp Thr Asp Ser Gly Arg Asp Val Ile Glu Val
3970 3975 3980
Ala Gln Met Lys Gly Glu Asn Arg Lys Thr Leu Ile Ser Gly Met Ile
985 3990 3995 4000
Asp Glu Pro His Ala Ile Val Val Asp Pro Leu Arg Gly Thr Met Tyr
4005 4010 4015
Trp Ser Asp Trp Gly Asn His Pro Lys Ile Glu Thr Ala Ala Met Asp
4020 4025 4030
Gly Thr Leu Arg Glu Thr Leu Val Gln Asp Asn Ile Gln Trp Pro Thr
4035 4040 4045
Gly Leu Ala Val Asp Tyr His Asn Glu Arg Leu Tyr Trp Ala Asp Ala
4050 4055 4060
Lys Leu Ser Val Ile Gly Ser Ile Arg Leu Asn Gly Thr Asp Pro Ile
065 4070 4075 4080
Val Ala Ala Asp Ser Lys Arg Gly Leu Ser His Pro Phe Ser Ile Asp
4085 4090 4095
Val Phe Glu Asp Tyr Ile Tyr Gly Val Thr Tyr Ile Asn Asn Arg Val
4100 4105 4110
Phe Lys Ile His Lys Phe Gly His Ser Pro Leu Val Asn Leu Thr Gly
4115 4120 4125
Gly Leu Ser His Ala Ser Asp Val Val Leu Tyr His Gln His Lys Gln
4130 4135 4140
Pro Glu Val Thr Asn Pro Cys Asp Arg Lys Lys Cys Glu Trp Leu Cys
145 4150 4155 4160
Leu Leu Ser Pro Ser Gly Pro Val Cys Thr Cys Pro Asn Gly Lys Arg
4165 4170 4175
Leu Asp Asn Gly Thr Cys Val Pro Val Pro Ser Pro Thr Pro Pro Pro
4180 4185 4190
Asp Ala Pro Arg Pro Gly Thr Cys Asn Leu Gln Cys Phe Asn Gly Gly
4195 4200 4205

FIG.14B-10

Ser Cys Phe Leu Asn Ala Arg Arg Gln Pro Lys Cys Arg Cys Gln Pro
4210 4215 4220
Arg Tyr Thr Gly Asp Lys Cys Glu Leu Asp Gln Cys Trp Glu His Cys
225 4230 4235 4240
Arg Asn Gly Gly Thr Cys Ala Ala Ser Pro Ser Gly Met Pro Thr Cys
4245 4250 4255
Arg Cys Pro Thr Gly Phe Thr Gly Pro Lys Cys Thr Gln Gln Val Cys
4260 4265 4270
Ala Gly Tyr Cys Ala Asn Asn Ser Thr Cys Thr Val Asn Gln Gly Asn
4275 4280 4285
Gln Pro Gln Cys Arg Cys Leu Pro Gly Phe Leu Gly Asp Arg Cys Gln
4290 4295 4300
Tyr Arg Gln Cys Ser Gly Tyr Cys Glu Asn Phe Gly Thr Cys Gln Met
305 4310 4315 4320
Ala Ala Asp Gly Ser Arg Gln Cys Arg Cys Thr Ala Tyr Phe Glu Gly
4325 4330 4335
Ser Arg Cys Glu Val Asn Lys Cys Ser Arg Cys Leu Glu Gly Ala Cys
4340 4345 4350
Val Val Asn Lys Gln Ser Gly Asp Val Thr Cys Asn Cys Thr Asp Gly
4355 4360 4365
Arg Val Ala Pro Ser Cys Leu Thr Cys Val Gly His Cys Ser Asn Gly
4370 4375 4380
Gly Ser Cys Thr Met Asn Ser Lys Met Met Pro Glu Cys Gln Cys Pro
385 4390 4395 4400
Pro His Met Thr Gly Pro Arg Cys Glu Glu His Val Phe Ser Gln Gln
4405 4410 4415
Gln Pro Gly His Ile Ala Ser Ile Leu Ile Pro Leu Leu Leu Leu Leu
4420 4425 4430
Leu Leu Val Leu Val Ala Gly Val Val Phe Trp Tyr Lys Arg Arg Val
4435 4440 4445
Gln Gly Ala Lys Gly Phe Gln His Gln Arg Met Thr Asn Gly Ala Met
4450 4455 4460
Asn Val Glu Ile Gly Asn Pro Thr Tyr Lys Met Tyr Glu Gly Gly Glu
465 4470 4475 4480
Pro Asp Asp Val Gly Gly Leu Leu Asp Ala Asp Phe Ala Leu Asp Pro
4485 4490 4495
Asp Lys Pro Thr Asn Phe Thr Asn Pro Val Tyr Ala Thr Leu Tyr Met
4500 4505 4510
Gly Gly His Gly Ser Arg His Ser Leu Ala Ser Thr Asp Glu Lys Arg
4515 4520 4525
Glu Leu Leu Gly Arg Gly Pro Glu Asp Glu Ile Gly Asp Pro Leu Ala
4530 4535 4540

FIG.14B-11